

THE AMERICAN MEDICAL MONTHLY.

M A Y, 1860.

ESSAYS, MONOGRAPHS, AND CASES.

The Physiology of the Circulation. A Course of Lectures delivered at the College of Physicians and Surgeons, New York, in the Fall Term of 1859. By JOHN C. DALTON, JR., M.D., Professor of Physiology and Microscopic Anatomy.

LECTURE V.

(SEPTEMBER 27.)

The Arteries and Arterial Circulation—Elasticity of the Arteries—Action of Aortic Valves—Arterial Pulse—Mode of its Production—Its Retardation at a Distance from Heart—Experiments of M. Marey—Pressure of Blood in the Arteries—Experiment—Different Instruments for Measuring Pressure—Constant or Arterial Pressure—Oscillations from Action of Heart—From Movements of Respiration—Disturbance of Arterial Pressure from Various Causes—Struggling—Congestion—Ligature of Arteries—Hæmorrhage—Obstruction of Respiration—Experiment—Rapidity of Pulse—Action of Woorara—Opening of Chest—Experiment.

We come now, gentlemen, to the consideration of the second great division of the circulatory apparatus, namely—the arteries. I shall not occupy your attention with any detailed description of the anatomical structure of these vessels. I will simply remind you that they constitute a system of ramifying vascular tubes, everywhere continuous with each other, and communicating freely with the heart at one extremity, and with the capillaries at the other. These simple anatomical relations are the most important of those which it is necessary to recollect in studying the peculiar phenomena of the arterial circulation.

The first and most essential physical property of the arterial tubes is their elasticity. This property, as you know, is due mostly to the structure of their middle coat, which, in all the larger and medium-sized arteries, contains an abundance of elastic fibres, running both longitudinally and transversely, and arranged in successive layers. But in the largest arteries, these fibres encroach upon the internal and external tunics, to such a degree, that the whole vessel seems composed essentially of elastic tissue.

The characters which I have just mentioned can be seen very distinctly in this aorta of the ox. You have here a tube with very thick walls, distensible and elastic in every direction. It is precisely like a large tube of india rubber. You can stretch it longitudinally, or dilate it transversely, by forcibly drawing apart its walls; and it always returns upon itself, and instantly resumes its former shape.

You can appreciate, therefore, the effect which must be produced in such a series of ramifying tubes by the force of the cardiac impulse and the reaction of their elastic walls upon the circulating blood.

In the first place, the contraction of the heart produces a sudden distention of the entire arterial system, by driving into it the blood from the left ventricle. The contraction of the heart, however, being instantaneous, is immediately followed by a relaxation, and the arteries, by virtue of their elasticity, then react upon the blood, and compress it with a force nearly equal to that by which they were themselves dilated. Now, what becomes of the blood subjected to this reaction? It would, as you know, regurgitate into the cavity of the ventricle, were it not for the existence of the aortic valves.

I will now call your attention, briefly, to the peculiar arrangement of the aortic valves, and their mode of operation.

These valves consist, you remember, of a set of festooned membranous curtains, fibrous in structure, and capable of great resistance. They stand as a barrier between the cavity of the aorta and that of the ventricle, and bear the pressure of the blood under the reaction of the arterial system. In this aorta of the ox, the valves have been left entire at its cardiac extremity. By filling the vessel with water, from above downward, the valves, you observe, are closed, and the aorta remains full. If we now insert the nozzle of a syringe into its upper extremity, and forcibly inject it in a backward direction, the artery is distended at each stroke of the piston, and then reacts upon the contained fluid, just as it would react upon the blood in the natural state of the circulation. Wherever an artery can be felt by the touch, you

easily perceive this alternate distention and reaction of the vessel. It is this distention of the arteries by the cardiac impulse, followed by their reaction, which is known as the phenomenon of the *arterial pulse*.

This arterial pulsation, which, as a fact, has been familiar to physiologists from time immemorial, was for a long period altogether misunderstood.

Singular as it may seem, the pulsation of the arteries in the earlier ages of medicine was thought to be a phenomenon of the same character as the expansion and collapse of the chest in respiration. Down to the time of Galen, the arteries were supposed to be filled with air, and their pulsation was supposed to be a kind of fanning or refrigerating process, by which the air was distributed to all parts of the body, so that the organs might be cooled by this bellows-like motion of the arterial tubes. Now, however, we know the fact to be quite different. The arteries are filled with blood, and their movement is caused by the alternate action of the heart and their own elastic resilience.

The pulsation itself, therefore, we understand, but we do not yet understand all its peculiarities and modifications. How is it, for example, that the pulse is not synchronous or simultaneous, in its occurrence, all over the body? We have one pulse at the heart, produced by the contraction of the left ventricle; another at the carotid, which some observers can distinguish as coming a little later than that at the heart; another at the wrist, which is very perceptibly later; and another at the ankle, in the posterior tibial, which is later still. This difference in the time of the arterial pulsations has been explained by supposing that the cardiac impulse travels outward like a wave, and so requires a certain time to reach the distant points of the circulatory system. But this explanation, though apparently so simple, is in reality insufficient. For we must recollect, that though the arteries are yielding and distensible, the blood itself is incompressible and inelastic. It must, therefore, transmit a mechanical impulse instantaneously in all directions, and cannot permit any delay in communicating the pulsations of the heart.

It has recently been found by accurate examination, that this is really the case. M. Marey has shown in a very satisfactory manner that the cardiac impulse is communicated, at one and the same instant, to the entire arterial system. All the arteries are distended simultaneously, by each stroke of the heart. The only difference in the pulsations near the heart, and at a distance, consists in the sudden or gradual manner in which the arterial distention takes place.

This fact is shown in the following manner: A long elastic tube is taken, and hung in several festoons between hooks which support it in its place. One end is connected with a forcing-pump, which injects through it, by alternate strokes, a stream of water, which escapes by the opposite extremity. Upon each festoon of the tube rests a little movable index, so arranged that it can be raised by a very slight force. At every stroke of the forcing-pump, therefore, the tube is distended, and each index is moved in a corresponding manner. Each index also marks upon a revolving cylinder of white paper in such a way as to register the rate and extent of its own movement. When the machine is in operation, accordingly, the different curves marked upon the paper show the exact manner in which different parts of the tube are distended by the strokes of the forcing-pump.

Now, it is found by such an experiment, that the expansion of the tube, in different parts of its length, *begins* at the same instant. The only difference is in the extent of the expansion, and the rapidity with which it is accomplished.

In the end of the tube nearest the forcing-pump, as in the arteries nearest the heart, the expansion is very wide and very sudden. The tube is almost instantly dilated to its utmost extent, while the reaction which follows is slow, and occupies all the rest of the time of a single pulsation. At a little distance further on, the expansion is more gradual, taking a longer time to reach its maximum, and is also less in extent than before. This is because, in the immediate neighborhood of the heart, almost the whole force of the cardiac impulse is occupied in expanding the vessel; and this expansion is, therefore, quick and sudden, like the stroke of the heart itself. But after that, comes the elastic reaction of the aorta, which urges the blood onward into the next portion of the arterial tube. Here, accordingly, the distention of the vessel is due partly to the stroke of the heart, which is quick, and partly to the resiliency of the aorta, which is slow. Its expansion is *completed*, therefore, a little later than in the former instance, though it *begins* at the same instant. For a similar reason, the expansion is less in extent at a distance from the heart, because its impulse is at first partly expended in dilating the aorta behind the point examined, and is afterwards replaced by the reaction of the same vessel.

In the neighborhood of the heart, accordingly, the arteries expand with a brusque and violent motion, but their reaction is slow and gradual. This is followed by another brusque and sudden dilatation; and so on again. At a greater distance, the dilatation becomes more

gradual, and more proportionate to the reaction; while at a greater distance still, the expansion of the artery occupies an equal time with its reaction; so that the expansion and reaction of the vessels become more uniform, similar, and equal to each other, the farther we recede from the centre of the circulation.

This explains the apparent retardation of the pulse towards the extremities of the arterial system. Near the heart, the pulsation of the arteries appears to be synchronous with the cardiac impulse, because their distention is so rapid and sudden; but at a distance, it seems to be later, because it takes a longer time for its completion.

You see, then, how the whole movement of the blood is equalized by the elastic reaction of the arteries; and that, though the blood is thrown out from the left ventricle in distinct and interrupted jets, its motion afterwards becomes constantly more steady and uniform. This change is owing entirely to the elasticity of the vessels. As the blood is discharged from the heart and enters the aorta, it is at once subjected to the reaction of the entire arterial system, and is forced to circulate under this pressure.

This brings us to the study of another very important point in the history of the circulation, viz., the *arterial pressure*.

As soon as the blood has left the heart and is contained in the arterial system, it is subject to a very remarkable, firm, and constant compression, which is exerted upon it by the elastic walls of the arteries themselves. You remember, however, that the arteries consist of a series of cylindrical tubes, whose cavities are continuous with each other throughout; and this reaction, therefore, which they exert by their elasticity, is equally felt throughout the entire system.

Now, the pressure which is thus exerted upon the blood in the arterial system can be shown by a very simple experiment.

I have here a dog which I will etherize, and then insert the extremity of a narrow glass tube into the carotid artery. You will then see the blood forced upward into the tube in such a way as to indicate the extent and power of the arterial compression. The carotid is first to be exposed and separated from the pneumogastric nerve and other adjacent parts. You now see the vessel running along the bottom of the wound, and pulsating with its usual force. Its upper portion is then to be tied, and the vessel being temporarily secured by the fingers, an opening is made into it at the point where the glass tube is to be applied. The lower end of the instrument is furnished with a short piece of india-rubber tubing, terminated by a brass nozzle, which is inserted into the artery and secured by ligature. The lower part

of the tube is filled with a solution of carbonate of soda, to prevent the too rapid coagulation of the blood.

Now, on releasing the artery and allowing the blood to pass into the glass tube, it rises, you observe, nearly to the top of the tube, to a height of about five feet and a half. Sometimes the pressure of the blood in the carotid of the dog is equal to five feet; sometimes five feet and a half, and sometimes six feet. This difference depends not so much upon the size of the animal as upon the condition of the circulatory system at the time.

You see, moreover, that the column of blood is not quite steady in the tube, but that it sometimes rises near the upper end, and then, in a few seconds, falls several inches below it. This motion corresponds with the movements of respiration. During inspiration the column of blood is lower, and during expiration it is higher than usual. Beside this slow oscillation, there is also another rapid one. The level of the blood moves up and down by a series of short and tremulous oscillations, which are synchronous with the pulsations of the heart. Both these oscillatory movements we shall study more fully hereafter. But notwithstanding them, you see that the level of the blood is constantly maintained in the tube, at or above a certain height, by a continuous and lasting pressure.

The column of blood, sustained in this way, is very nearly the same in animals of different size. There is but little difference in this respect between the horse, the dog, and so small an animal as the rabbit; the diameter of the tube employed being, of course, proportionate in each instance. There is also but little difference in the different arteries of the same animal. The column of blood stands at nearly the same level, whether the tube be inserted into the carotid, the femoral, or one of the smaller branches of these vessels; for the arteries all communicate with the aorta, and of course the pressure is transmitted almost equally to every point.

Where the arteries inosculate freely with each other by transverse branches, this pressure may even be shown by inserting the tube into a vessel which is separated from the heart by division or ligature. This is the case, for example, with the carotids. In this animal, we have divided the left carotid and secured both extremities by ligature. I will now find the upper extremity of the vessel, and, taking off the ligature which was placed upon it, introduce into it the brass nozzle of our instrument, as before. You see, the blood passes again into the tube from the upper portion of the carotid, and though the column of blood is not so high as before, it is, nevertheless, a very con-

siderable one, and shows the communication of the arterial pressure from the other vessels of the head and neck.

There are various instruments which have been contrived for showing the pressure of the blood in the vessels, more compact and convenient for use than the long glass tube which we have just employed. Here is one of them, which is called the *Hemodynamometer*. It consists of a bent glass tube, open at both ends, in the form of an inverted siphon, or letter U. In the lower curved portion, there is placed a quantity of mercury, which stands, of course, at the same level in both of the upright limbs, when the instrument is held in a vertical position. It is calculated to act, therefore, as a mercurial guage, and will measure accurately any excess of pressure exerted upon one extremity, by the descent of the mercury in the corresponding portion of the tube and its rise in the opposite limb. One extremity of the instrument is furnished with a short flexible tube and brass nozzle; and the nozzle being inserted into the artery of a living animal, the pressure of the blood, and its oscillations, may be read off upon a graduated scale, by the rise and fall of the mercurial column. The mercury is generally displaced about six inches, which is equal, in weight, to about six feet of water, or a little over five and a half feet of blood. This instrument, therefore, gives the same result as the simple straight glass tube, but in a more compact form.

Before using this tube, it is necessary, as in the other cases, to fill a portion of it with a solution of carbonate of soda, in order to prevent the coagulation of the blood.

I will now take up again the lower extremity of the carotid artery in this animal, and insert into it the nozzle of the instrument. You observe, before placing the two in contact, that the mercury stands evenly and at zero in both limbs. Now I have introduced the tube into the artery, and you see that the mercury is immediately depressed in one branch of the tube, and that it rises in the other. The depression now varies between sixty and sixty-five divisions of the scale in the right-hand tube, and there is a similar elevation on the other side. This is nearly equal to three inches of mercury on each side, or six inches on both sides.

The divisions of the scale are marked in French millimetres; each millimetre being equal to about $\frac{1}{8}$ of an inch.

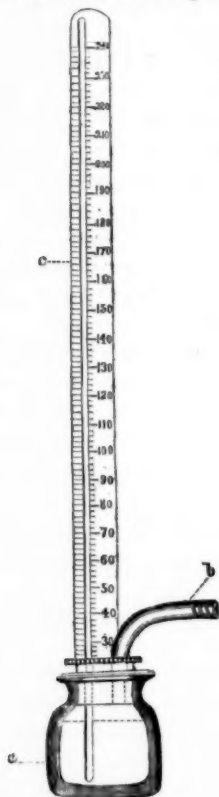
Now notice, gentlemen, if you please, the different effects of the arterial pressure and the cardiac pressure. The pressure of the arterial system is indicated by the entire and constant displacement of the mercury in the limbs of the instrument; while the effect of the cardiac

pressure is the incessant oscillation which you observe in the level of the mercury. The liquid is depressed more strongly as the heart contracts, and less so as it relaxes. The column now varies between sixty and seventy millimetres on each side. That is, the force of the heart's contraction is equal to ten millimetres on each side, or twenty

millimetres in the whole; which is rather less than one inch of mercury, or one foot of blood.

The excess of the cardiac pressure, therefore, is nearly equal to one foot of blood, while the reaction of the entire arterial system is between five and six feet.

Here is another instrument, constructed upon the same principle with the other, but still more compact in form, and more convenient. It is called the *Cardiometer*. It consists of a small, but strong, wide-mouthed glass bottle, with a closely-fitting brass stopper. Through the stopper there passes a short brass tube, which is bent at right angles, and which is furnished with a nozzle, to be inserted into the artery. From the lower part of the bottle there also rises a narrow glass tube, about ten inches in height, open at both ends. The bottle is filled with mercury, and when the brass nozzle is made to communicate with an artery, the pressure of the blood acts upon the mercury and forces it up into the glass tube to a corresponding height. This instrument is found to be much better than the other for showing rapid variations of pressure by the oscillations of the mercury.



CARDIOMETER.

- a, Glass Jar containing Mercury.
- b, Brass Tube, to be connected with the artery.
- c, Upright Glass Tube, with graduated scale.

To illustrate its operation, I will detail several experiments which I have performed with it in the following manner:

Experiment.—A healthy dog, weighing a little over 31 pounds, was

etherized six hours after feeding, and the cardiometer applied to the cardiac extremity of the left carotid artery.

At first, the mercury oscillated in the upright tube as follows:

130 to 160 (millimetres.)

135 to 165.

150 to 170.

These oscillations were mostly due to the effect of the respiratory movements, the mercury going up to 160, 165, and 170 at the time of expiration, and falling to 130, 135, and 150 at the time of inspiration. The *cardiac impulses*, of which there were two or three for each inspiration and each expiration, were not more than five millimetres each; so that the mercury mounted, say from 130 to 160 at one expiration, showing, during its ascension, several small cardiac oscillations, of five millimetres each.

After the animal was more thoroughly etherized, so that the respirations became very calm, the disturbing influence of the respiratory movements disappeared, and each cardiac impulse was marked by an oscillation of 10, 12, or even 15, as follows:

160 to 175.

190 to 200.

150 to 162.

Cardiac pulsations=10 to 15 millimetres.

A few minutes afterward, the animal still remaining calm, but beginning to recover a little from the effects of etherization, the mercurial oscillations again indicated slightly the disturbing influence of the respiratory movements, as follows:

145 to 152.

140 to 150.

Cardiac pulsations=7 to 10.

Still later, the movements of respiration created an oscillation of 10 millimetres, as follows:

140 to 150.

The cardiac pulsations being only 5 each.

The animal was then freshly etherized, when the respiratory oscillations again disappeared, and the cardiac pulsations at the same time became more strongly marked, as follows:

150 to 160.

165 to 180.

150 to 165.

Cardiac pulsations=10 to 15.

One grain of woorara in solution was then injected into the sub-

cutaneous areolar tissue of the left thigh. The poison, in this instance, was unusually long in producing its effects, (viz., from ten to fifteen minutes,) owing, probably, to the etherized condition of the animal. During this interval, the following phenomena were observed:

Soon after the injection, the cardiac pulsations were well marked, equalling 10 millimetres each; the respiratory oscillations at the same time being only 5 millimetres, as follows:

150 to 160.

155 to 165.

160 to 170.

Cardiac pulsations=10.

But during the access of laborious respiration, which came on once or twice, the *respiratory oscillations* became very extensive, equalling 110 millimetres, thus:

110 to 220.

As soon as the poison began to produce its specific effects, the trachea was opened, the nozzle of a bellows inserted into it, and artificial respiration kept up. The *cardiac pulsations* were then pretty constant, at five millimetres each. But the effect of the artificial insufflation upon the *respiratory oscillations* was just the opposite of that produced by natural inspiration.

In natural respiration, the mercury rises at the time of expiration, and falls at the time of inspiration. Now, however, as might be expected, the mechanism of respiration being changed, its effect upon the arterial pressure was different. At each artificial insufflation the mercury mounted in the tube for 20 or 25 millimetres, as follows:

155 to 180,

and descended again, in the intervals, to its former level; the constant or arterial pressure remaining about the same, viz., 150 or 155 millimetres.

When the artificial insufflation was suspended the arterial pressure was at once increased, the mercury mounted in the tube to 200 or thereabout, and oscillated at that level by cardiac pulsations of 10 millimetres each, thus:

190 to 200;

200 to 210;

but immediately fell again to 155, when the insufflation was recommenced, the cardiac pulsations again becoming reduced to five millimetres.

When the animal had become fully affected by the woorara, so that there was complete loss of consciousness, no voluntary movement, and

no respiratory movement of the lips or nostrils, the oscillations produced by insufflation were as follows:

150 to 180.

Cardiac pulsations=5.

The chest of the animal was then opened, and the heart and the great vessels exposed to view. A little blood was lost in the operation. Immediately afterward, the cardiac impulses were sensibly weakened, being reduced to three millimetres each; but in a short time they recovered strength a little, and were again five millimetres. Owing to the removal of the thoracic parietes, also, the effects of *insufflation* on the mercurial oscillations now disappeared, and the only oscillations perceptible were those due to the cardiac movements.

Very soon after opening the chest the entire arterial pressure diminished very considerably, the level of the mercury falling 100 millimetres, and its oscillations being as follows:

45 to 50.

50 to 55.

70 to 75.

Cardiac pulsations=5.

On suspending insufflation, the pressure in the arteries was increased as before, and the cardiac pulsations became very long and distinct, thus:

100 to 150.

130 to 200

Cardiac pulsations=50 to 70.

On recommencing insufflation, the oscillations again fell to their former level, as follows:

50 to 55.

Cardiac pulsations=5.

The experiment was then terminated.

From these observations, gentlemen, it is easy to see that there are three principal elements in the pressure or force with which the blood circulates in the arterial system.

The first of these is the *constant* or *arterial* pressure. This depends upon the reaction exerted by the entire arterial system by means of its elastic parietes. The blood, contained in a series of branching tubes provided with elastic walls, and completely filling their cavities, is subjected thereby to a steady and continuous pressure. This pressure is felt equally, or nearly so, at all parts of the arterial system, and in all directions, as if an elastic bag were filled with a fluid which had been forcibly injected into it. Accordingly, if an opening be made in

any part of the arterial system, the blood is driven out with a certain force by the reaction of the vessels themselves. If a tube filled with mercury be inserted into the mouth of a divided artery, and secured by ligature, the blood will displace the mercury from its level, until the weight of the mercurial column exactly counterbalances the reaction of the arteries. The arterial pressure can thus be measured; and we have found that it is usually equal to about 150 millimetres, or six inches of mercury.

Beside the constant or arterial pressure, however, the blood is also subject to an intermitting action, viz., that of the *cardiac impulse*. At every contraction of the heart, more blood is forcibly thrown into the arteries, and, of course, the pressure is momentarily increased. When the heart relaxes, the superabundant portion of blood passing steadily away by the capillaries and veins, the increased pressure is taken off, and the arterial reaction only remains. There is, accordingly, a series of rapid oscillations in the column of mercury, corresponding with the action of the heart. At every beat the level of the mercury rises, at every relaxation it falls. The extent of these oscillations measures the force of the heart and the resistance of the artery. If the arteries were entirely unyielding, the whole force of the heart's contraction would be manifested by the rise of the mercury in the tube of the cardiometer. But the arteries are distensible and elastic; so that a portion of the heart's impulse is occupied in dilating their walls, and only a part of its force is shown by the immediate rise of the mercurial column. We have, therefore, a constant pressure, due to the arterial elasticity, and an oscillating pressure, due to the superior force of the heart's pulsations.

While the arterial pressure, also, is the same in all parts of the body, the influence of the cardiac pulsations diminishes from the heart outward. For at a distance from the heart, in the radial or tibial artery, for example, the force of the heart's impulse has already been divided and subdivided in distending the arterial coats; and the elastic vessels, also, return to the blood, in the intervals of pulsation, more and more of the force with which they were distended; so that the difference in the pressure on the blood, corresponding with the heart's pulsations, becomes less and less, from the centre to the circumference; but the mean or constant pressure remains the same.

The third force exerted upon the blood in the arteries is that of the *respiratory movements*. The effect of this is seen in the rise and fall of the mercury every time that the chest expands and collapses. At the moment of expansion, the pressure is lifted off from the heart and large

vessels by the rising of the walls of the chest; the tension of the arterial system is consequently diminished, and the mercury falls a little in the cardiometer. When the chest collapses again, on the other hand, this pressure is restored, and the mercury rises to its former level. There results, accordingly, a series of oscillations, which are distinct from those produced by the cardiac pulsations, and which are synchronous with the movements of respiration. These respiratory oscillations are but slightly perceptible in the ordinary condition of the animal, and not at all so when the breathing is very easy and quiet; for then, the inspiration is so slow and gradual, that the air readily penetrates the lungs, and immediately counterbalances the diminished pressure of the thoracic parietes. But whenever the breathing becomes rapid and laborious, the difference of pressure in inspiration and expiration is so marked, that it produces a sensible effect on the rise and fall of the mercurial column.

There are, accordingly, as we have seen in various experiments, two sets of oscillations in the cardiometer—one of them more rapid, corresponding with the arterial pulse—the other a slow one, corresponding with the movements of respiration. As each movement of respiration, also, corresponds in time with several successive cardiac pulsations, the movements of the mercurial column bear the same relation to each other. At each expiration the mercury rises in the tube, by three or four short successive strokes, to its full height, and then falls, during inspiration, by a descending series, to its former level. These appearances have been mistaken by some experimenters, and have been supposed to indicate a peculiar irregularity in the force of the heart's action; but a little observation will show that they are due to the cause I have just described; for the ascending movements of the mercurial column always take place at the time of expiration, and the descending movements at the time of inspiration.

These respiratory oscillations sometimes reach the extent of thirty millimetres or upward, while the cardiac impulses are not more than five or ten millimetres each. But when the respiration again becomes quiet, the disturbing influence of its movements disappears, and the only oscillations then perceptible are those due to the cardiac pulsations.

Before leaving this part of the subject, gentlemen, I will call your attention to some circumstances which modify the pressure of the blood in the arterial system.

1st. One of these circumstances is the condition of rest or activity of the animal subjected to experiment.

While the animal is in a quiescent condition, the arterial pressure is moderate—averaging about 150 millimetres; but as soon as he begins to make any exertion, it increases, and may reach 175 or 200 millimetres. If you were to wake up this animal from his etherized condition and make him struggle or cry, you would immediately see the arterial pressure very much increased. This is because, in the act of struggling, the muscles of the trunk and extremities are contracted, and the chest is forcibly compressed. This unusual compression of the chest not only crowds the blood from the heart and large vessels into the arteries, and so increases the tension of these vessels, but also has the effect to engorge them by a backward action through the veins and capillaries. The arterial system is therefore fully distended, and its pressure upon the blood increased, during the act of struggling.

2nd. A similar increase of the arterial pressure is produced by whatever causes a general or local congestion of the arterial system. Thus, anything which limits or confines the space occupied by the arteries, without at the same time diminishing the quantity of blood contained in them, will produce an increase of the arterial pressure. Now the ligation of an artery has precisely this effect. If the femoral artery be tied, and the circulating fluid thus prevented from gaining access to the corresponding limb, all the blood of the body will at once be distributed to the remainder of the arterial system. The quantity of blood, therefore, will be increased in proportion to the space which it occupies, and a corresponding increase of tension will be manifested throughout the rest of the arterial system.

Bernard has found, for example, that on applying the cardiometer to the left carotid artery of a dog, the minimum pressure was 110 millimetres; but after tying the carotid of the opposite side, it rose to 165 millimetres. On another occasion, the pressure rose, owing to the same cause, from 150 to 185 millimetres. And the larger the number of arteries tied, the greater will be the excess of pressure produced in the rest of the circulatory system.

It is evident, accordingly, that if the cardiometer be applied in such a way as to cut off the access of the blood to any considerable part of the vascular system, it will disturb the circulation in the same way as if the vessel were simply ligatured at that point, and the instrument will indicate an excessive and unnatural pressure. In order to avoid this difficulty, the cardiometer should be applied to some part of the arterial system where it will not materially interfere with the passage of the blood to the parts beyond. For this purpose, the carotid arteries are by far the best in the body. They are easily exposed and

of a convenient size, and their branches inosculate so freely, in the head and neck, with each other and with the vertebrals, that the blood still finds its way readily into these parts after one of the carotids has been obstructed by the instrument. But in most other regions of the body, the application of the cardiometer upon the main artery cuts off all the blood from the part, and produces an unnatural rise in the arterial pressure.

It is for this reason, more than any other, that the cardiometer gives different results when applied to arteries in different regions of the body. Milne Edwards, for example, in his admirable work on Comparative Anatomy and Physiology, mentions that the inequality of pressure in the various arteries is not proportional to their distance from the heart, nor the same in different regions of the body; and that the pressure of blood in the femoral arteries, for example, is greater than that in the carotids.

This is because, when the cardiometer is applied to the femoral artery, the arterial current, as I have already mentioned, is *blocked* or stagnated in the thigh; but when it is applied to the carotid, the current is left nearly free and natural, owing to the abundant arterial inosculatation about the neck and head.

If the proportion of blood in the vascular system be diminished, on the other hand, the arterial pressure falls in a corresponding degree. The abstraction of blood by hæmorrhage produces this effect. If the bleeding be moderate in amount and rapidity, it affects both the arterial and the cardiac pressure. But the cardiac pulsations feel the effect of the hæmorrhage more quickly than the steady pressure due to the reaction of the arterial walls. The oscillations of the mercury, accordingly, are first diminished in extent, as the force of the heart's action is lessened; and afterward the arterial pressure is also reduced, owing to the diminished quantity of blood in the vascular system. Bernard once applied the cardiometer to the carotid artery of a dog, and then subjected the animal to a moderate bleeding from the jugular vein. During the first nine minutes of the bleeding, the oscillations of the mercurial column, due to the heart's pulsations, were diminished in extent from 35 millimetres to 25, 20, 15, 10, and 5. But the arterial pressure remained nearly steady at 110 millimetres, until the tenth minute, when it fell to 95, and afterward to 90, 85, and 80 millimetres.

It is noticed, also, that the arterial pressure recovers itself very rapidly after stopping the hæmorrhage, but the cardiac pulsations remain enfeebled for a considerable time longer. This is undoubtedly

because the *mass* of the blood is very soon replaced after a hæmorrhage, by absorption of serous fluid from the tissues, and the physical distention of the arteries is immediately recovered; but the *chemical constitution* of the blood is less easily restored, and the heart continues to feel this change until it is again rectified by the process of nutrition.

3d. The arterial pressure is also very much increased by any temporary obstruction to the respiration. We already understand why it should be so, since we have seen, in a previous lecture, that the immediate effect of an obstruction to the breathing is a congestion of the arterial system. By means of the cardiometer we can demonstrate and measure the extent of this congestion. If the instrument be applied to the carotid artery, and the respiration of the animal be then arrested, the mercurial column immediately begins to rise in the tube to a higher level.

In the experiment which I related to you, for example, the level of the mercury rose at one time, after stopping respiration, from 150 to 200 millimetres, and oscillated about that point by pulsations of ten millimetres each. In another instance, the arterial pressure, which had fallen to 60 or 65 millimetres in consequence of the opening of the chest, rose to 150 and 200 after stoppage of respiration.

The heart's pulsations, also, are increased in extent after the breathing has been suspended for a short time, amounting sometimes to 125 or 130 millimetres. The level of the mercury is then thrown up at each pulsation to 250 or 260 millimetres, and sinks back in the intervals to 150 or 170. During the latter part of the process, however, when the congestion of the arterial system passes off and that of the heart begins, both the arterial pressure and the cardiac oscillations are again reduced, and the mercury gradually falls in the tube, with the decreasing force of the circulation.

The following experiment will illustrate the alterations which take place in the vascular pressure after stoppage of the respiration:

Experiment.—A dog was poisoned with woorara, and artificial perspiration kept up while the thoracic duct was exposed at the root of the neck, and a silver canula inserted into it, for the purpose of collecting the chyle. The chyle was collected in this way for half an hour, after which the canula was withdrawn from the duct.

The cardiometer was then applied to the left carotid artery. The artificial respiration was kept up by insufflations through a bellows inserted into the trachea. The insufflations were made at the rate of forty per minute, and were moderate in force. They exerted no perceptible effect upon the oscillations of the mercury, which were altogether syn-

chronous with the movements of the heart. The movements of the mercurial column were at first as follows:

140 to 150.

135 to 145.

Cardiac pulsations=10.

After a short time the cardiac pulsations became feebler and more frequent, viz., 150 to 160 per minute, and as follows:

125 to 130.

130 to 135.

Cardiac pulsations=5.

The insufflations were then stopped. The effect of the stoppage was to raise the arterial pressure, and almost simultaneously, also, to increase the extent of the cardiac pulsations. The cardiac pulsations also became less frequent, and more easily counted. They were as follows:

Oscillations of the mercury.	Cardiac pulsations.	Oscillations of the mercury.	Cardiac pulsations.
120 to 130	10	150 to 260	110
120 " 140	20	150 " 250	100
90 " 150	60	150 " 245	95
70 " 170	100	140 " 240	100
110 " 200	90	130 " 240	110
130 " 260	130	150 " 250	100
140 " 240	100	140 " 240	100
80 " 170	90	140 " 240	100
100 " 210	110	140 " 255	115
150 " 240	90	140 " 240	100
100 " 210	110	150 " 250	100
140 " 270	130	140 " 255	115
150 " 270	120	140 " 260	120
140 " 240	100	140 " 260	120
130 " 240	110	130 " 250	120
120 " 220	100	120 " 230	110
160 " 260	100	110 " 230	120
170 " 270	100	90 " 195	105
130 " 200	70	80 " 185	105
120 " 220	100	90 " 210	120
150 " 240	90	90 " 220	130
170 " 270	100	85 " 210	135
140 " 220	80	80 " 200	120
120 " 230	110	90 " 215	125

Oscillations of the mercury.	Cardiac pulsations.	Oscillations of the mercury.	Cardiac pulsations.
80 to 200	120	90 to 135	45
70 " 195	125	80 " 130	50
90 " 210	120	70 " 110	40
80 " 210	130	65 " 80	15
80 " 210	130	60 " 70	10
90 " 220	130	55 " 65	10
100 " 190	90	50 " 60	10
90 " 165	75	50 " 55	5
90 " 180	90	40 " 45	5

From this point the oscillations continued to diminish in height and extent, until they became altogether imperceptible.

By the use of the cardiometer we can satisfy ourselves of many important points in regard to the effect of various conditions upon the heart's action on the one hand, and the arterial pressure on the other. I have already mentioned to you that almost universally a *rapid* pulse is deficient in strength, while a *slow* pulse acts with more force and vigor. This can readily be seen in the variations which show themselves while experimenting with the cardiometer. I have almost invariably found that whenever the pulse of the animal becomes accelerated during an experiment, the oscillations of the mercury diminish in extent; while, if the pulse becomes slower, the oscillations are sensibly increased, though the constant pressure may remain unaltered.

In one experiment, for example, while the pulse was 160 per minute, the mercurial oscillations were 10 millimetres each; but after the pulse had fallen to 130 per minute, the oscillations were 15 millimetres each. At another time, the pulse rose in frequency to 150 or 160 per minute, and the oscillations were at the same time reduced from 10 to 5 millimetres each. On one occasion the force of the heart's pulsations having been reduced to 3 millimetres each, the pulse rose at the same time to 190 per minute. The force of the cardiac pulsations, therefore, is in inverse ratio to their rapidity.

I have observed, also, that the ordinary varieties of *woorara*, which act so powerfully on the voluntary muscles, exert little or no specific influence on the action of the heart. It may even increase somewhat the force of the heart's movements, while it lessens their rapidity, by destroying the consciousness of the animal, and thus preventing his being excited or agitated by external causes. The operation of *opening the cavity of the chest*, on the contrary, immediately depresses considerably both the cardiac pulsations and the arterial pressure, the

pulse being at the same time very much increased in frequency. We can never, therefore, inspect the action of the heart, in its perfectly normal condition, by opening the chest. After this operation, the movements of the organ are always much more rapid than natural, and enfeebled to a corresponding degree. For the removal of the thoracic parietes takes away the external support from the lungs and arch of the aorta, and so diminishes the tension of the whole arterial system; while the exposure of the heart, and its contact with air, produce a comparatively irritable and enfeebled state of its muscular walls.

These points are illustrated by the following experiment:

Experiment.—A full-grown, healthy dog, weighing about 20 pounds, was etherized in the early part of the day, and the left carotid artery exposed by dissection, and separated from the surrounding parts for about two inches of its length. The wound was then closed by a suture, and the animal left to himself.

At half past one, P. M., the dog had completely recovered from the effects of the ether. He suffered no apparent inconvenience from the wound in the neck. When placed upon the table, his pulse was 174 per minute, of good quality.

The animal was then held in position, by assistants, upon his back, where he remained perfectly quiet, and without struggling. The wound was then opened and the cardiometer applied, in the usual way, to the left carotid artery. This operation did not produce any visible agitation in the animal, nor any sign of pain.

Immediately afterward, at 15 minutes before two, the pulse was 160 per minute, and the oscillations of the mercury in the cardiometer as follows:

135 to 145.

140 " 150.

130 " 140.

125 " 135.

Cardiac pulsations=10.

The animal remained, during this time, perfectly quiet, with a calm and uniform respiration.

At five minutes before two o'clock, the pulse had fallen to 130 per minute, and the oscillations were as follows:

125 to 140.

120 to 135.

120 to 135.

Cardiac pulsations=15.

At four minutes before two, one grain of woorara, in solution, was injected under the skin of the abdomen. The only immediate effect of this operation was a slight increase in the rapidity of the pulse, together with a diminution in force, the oscillations being reduced to ten millimetres each. This was probably owing to the slight degree of pain inflicted by the injection.

At five minutes past two, the pulse was again reduced to 140 per minute.

Oscillations, 125 to 140. Cardiac pulsations=15.

At ten minutes past two, the signs of poisoning by woorara became evident. The trachea was opened, the nozzle of a bellows inserted into it, and artificial respiration kept up.

As soon as the disturbance consequent on the temporary obstruction to respiration had ceased, the pulse was found to have decidedly diminished in frequency and gained in force.

At fifteen minutes past two, the pulse was 62 per minute, and the oscillations were as follows:

125 to 150.

135 to 160.

125 to 150.

Cardiac pulsations=25.

At half past two the pulse was 80 per minute, and the oscillations

135 to 165.

130 to 160.

Cardiac pulsations=30.

At thirty-five minutes past two, the chest was opened in the usual manner, so as to expose the heart and lungs. Immediately afterward it was found the pulse was very much accelerated and excessively reduced in force. The arterial pressure was also much diminished. The pulse was 190 per minute, and the oscillations as follows:

90 to 93.

92 to 95.

87 to 90.

Cardiac pulsations=3.

On cutting away the pericardium and fully exposing the heart, it was seen that the action of the organ was not perceptibly weaker than it usually is, after being exposed to view in this way. The movements of the heart continued, under the use of the artificial respiration, as in other similar experiments; but the mercury in the cardiometer-tube sank gradually below 80, 70 and 60, and finally below 40 millimetres, the oscillations remaining very weak, and measuring only two or three millimetres each.

On stopping the artificial respiration, the mercury immediately rose, as usual, in the cardiometer, but only to 160 or 170 millimetres, and afterward sank out of sight again as the heart's action finally ceased.

I will now, gentlemen, terminate this lecture by stopping the respiration in this animal, to whose carotid artery we attached the mercurial guage with a double tube. For this purpose, I will inject into the femoral vein a small quantity of solution of woorara. The injection is made slowly, so as not to produce any mechanical disturbance of the circulation.

The displacement of the mercury, you observe, on each side of the instrument is between thirty and forty divisions of the scale, and is gradually diminishing. It is less than usual, owing to the long time the animal has been kept under the influence of ether. It is now about thirty-five divisions. The respiration, within a minute and a half after the injection of woorara, is already becoming very quiescent. You observe a twitching about the eyes of the animal, which can often be seen during the operation of this poison.

At this time, the pulsations of the heart continue with a tolerable degree of force and regularity. The mercury stands at twenty to twenty-five divisions. Now the respiration has entirely ceased, and I can distinctly feel the pulsations of the heart through the ribs. The mercury has fallen below twenty, and its oscillations are very weak.

Now, you observe, the mercury begins to rise again in the tube of the instrument. It is now twenty-five divisions, now twenty-seven, and now thirty. This increased arterial pressure, you will understand, is owing to the stoppage of respiration and the obstruction of the capillary circulation. The column of mercury has now risen to forty divisions. The pulsations of the heart at this time are feeble, but recur with the same rapidity and regularity as before. The mercury still has a tendency to rise, showing that the arterial pressure is very much greater than it was a moment after the stoppage of respiration. It has now reached forty-five, and now forty-seven and a half.

Now the arterial pressure begins suddenly to diminish. The mercury falls to forty-two, thirty-seven, thirty-five, thirty. The last stage of the process has now commenced. Regurgitation takes place from the aorta, and the heart becomes congested and paralyzed, while the distention of the arterial system begins to subside and disappear.

You see, now, the phenomenon which is always to be noticed at this stage, viz.—the mercury sinks toward the same level on both sides of the instrument. The pulsations of the heart are longer than before; they occupy a greater interval, and do not recur so rapidly. The mer-

cury has subsided to twenty-five divisions. The heart's pulsations are still very readily felt through the walls of the chest, and are absolutely synchronous with the oscillations of the mercury in the instrument. At every contraction of the heart, the mercury is elevated in the tube; but at each relaxation, the mercury falls farther back than before, because the blood now regurgitates from the aorta into the heart.

The left auricle and ventricle, as well as the right cavities, are now beginning to be distended and paralyzed. The mercury has already fallen to twelve or thirteen divisions, and will very soon come to a level on both sides of the instrument, and finally stand at zero, as the circulation comes to an end.

Lectures on Displacements of the Uterus. By E. R. PEASLEE, M.D., LL.D., Prof. of Obstetrics and Diseases of Women and Children in the New York Medical College.

(Continued from last No. of the MONTHLY.)

LECTURE III.

GENTLEMEN—The displacements of the non-gravid uterus may, for all practical purposes, be arranged under two classes:

1st. Displacements of the whole uterus *downward*—including prolapsus in its various degrees, and inversion. The latter usually occurs, however, in connection with parturition.

2d. Displacements of the whole uterus, or of its body alone, either *forward* or *backward*—anteversion or ante flexion, and retroversion or retroflexion.

I might also add displacement of the whole uterus upward—*elevation uteri*; and lateral displacements of the body, or of the whole organ. But the former, if uncomplicated, requires no treatment; while the latter are mere complications with the anterior and posterior displacements, or are produced by the direct pressure of abnormal developments within the pelvis, and will be disposed of in connection with the second class of displacements.

Premitting inversion of the uterus, for the present, since its most common method of causation separates it, practically, from the others—I shall consider the displacements in the following order:

- | | | |
|-------------------|---|---|
| 1. Prolapsus. | } | Displacements of the whole uterus downward. |
| 4. Inversion. | | |
| 2. { Anteversion. | } | Displacements of the whole uterus, or of its body only—forward. |
| { Ante flexion. | | |

3. { Retroversion. } Displacements of the whole uterus, or of its body
 { Retroflexion. } only—backward.

You will, therefore, entirely isolate prolapsus uteri from the other class of displacements. For, though both classes may present the same local symptoms, as enumerated in my first lecture, and may also ultimately induce the same general symptoms, still the local treatment of the two classes is, as a general rule, conducted on different principles. The local treatment is, however, in both classes, indispensable, and especially determines the curative result. For while it often fails without the general treatment, the latter very rarely succeeds without the local; and the local in many cases succeeds alone. It is, therefore, more especially in aid of the local treatment that the general is resorted to.

But before commencing with prolapsus, I will, in order to avoid repetition, speak of the general or constitutional symptoms common to all the displacements, as I have before spoken of their common local symptoms. And we find that they affect the nervous, the digestive, and the circulatory systems.*

A. *Symptoms affecting the nervous system.*—It is generally understood that those suffering from uterine diseases are the most nervous of all patients. All understand the many symptoms developed by the uterus during pregnancy; and those of diseases of the same organ are neither less numerous nor essentially dissimilar. All the functions of both the cerebro-spinal and the sympathetic nervous system are liable to become deranged. Hence, we find abnormal sensations, impairments of the motor power, and morbid states of the mental faculties, as affections of the former; together with derangements of all the organic functions. It will be remembered that all the symptoms of the displacements which I am about to enumerate may occur in other uterine affections also.

1. As morbid *sensations* due to uterine displacements, I refer to the local pains and other peculiar sensations in various parts of the body, enumerated in my first lecture. But there are others of which I must here take account. Irritation of the bladder, and of the rectum; an exquisitely painful sensitiveness of the vagina; and a distressing pain referred to the point of the os coccygis—are not uncommon symptoms. Also may be added, pain along the crest of the ilium, or above the pubes; a feeling of *malaise* in the region of the ovaries, (especially of the left;) a pain under the edge of the ribs, more frequently on the left side, and suggesting to the patient the idea of heart disease; or

* Dr. Peebles, in *Am. Journ. of Med. Sciences*, Jan. 1853, p. 41-8.

seeming, if on the right side, to indicate some hepatic derangement; pain, tenderness, or swelling of one or both mammae; pain on pressure over some of the spinous processes of the vertebral column; and an exaggerated sensibility of the surface of the abdomen, or even of the whole body. All the preceding come under the head of reflex pain, before alluded to. I have, in three instances, seen this acute sensibility of the whole abdominal surface developed (to terminate spontaneously in a few hours) by the introduction of the uterine sound. Another symptom, almost pathognomonic, of uterine affections, is the "uterine headache," referred to the top of the head, usually extending over a circular or oval surface, and which is relieved by pressure. Sometimes, however, instead of pain, a "crazy feeling," a sensation of cold or heat, or a numbness, is complained of; or the surface is tender on pressure, or found to be preternaturally hot. Sometimes a neuralgic pain extends over the entire scalp. These sensations in the head are sometimes relieved the instant the uterus is replaced, again to return at once, if it relapses into its displaced condition. The same is also true of many others of the symptoms I have mentioned; and especially those affecting the back, the groins, and the thighs.

On the other hand, numbness or sensations of cold, affecting any part of the body, may frequently be observed; especially numbness in the groin and anterior surface of the thighs; and coldness of the hands and feet are among the most frequently occurring symptoms.

2. Under derangements of the *motor* function we have every variety of deranged muscular action, whether of debility, or of excessive or irregular action. Hence, a feeling of languor, affecting the whole muscular system, or the back and lower extremities alone, and impairing the ability to walk. Various forms of spasmodic affections are also to be added, of which I specify the following: A loud, dry, spasmodic cough, distinguished by the suddenness of its appearance and its disappearance; various modifications of the respiratory movements; spasmodic affections of various sets of muscles, and not seldom of those of the back of the neck, causing the head to be drawn backward. In a word, all those irregular actions which we see developed in *hysteria*, belong here; this disease, in its ever-varying phases, being one of the most common effects of uterine displacements. Very often we find spasmodic twitching in the groins, the leg, the eyelid, and the abdominal muscles.* Palpitation of the heart is also a very common symptom.

3. But not the least important symptoms of uterine displacement

* Dr. Peebles, as above, p. 45.

are those affecting the patient's *mental* condition. We often find her *morale* completely changed. She has, perhaps, become impatient, selfish, is despondent, and avoids society; is irritable, and perhaps thrown, by the least opposition to her wishes, into great excitement, or even into an hysterical paroxysm. The intellectual faculties also suffer. Debilitated by want of exercise, and prolonged confinement within doors, such patients lose their powers of volition and intellectual exertion, and become a prey to their morbid fancies and painful sensations of every kind; a "condition sometimes ending in insanity, and often resulting in a state of mind but little short of it."—*Peebles*. This result, moreover, is not seldom precipitated by the unsympathizing conduct of the husband or friends of the patient; who ignorantly assume that these symptoms are due to a merely imaginary disorder, that the poor victim is merely "nervous."

B. *The symptoms affecting the organic functions* are also very numerous. Some of the symptoms already mentioned are, indeed, often dependent on previous derangements of this class of functions.

1. Much derangement of the digestive and secretive functions occurs in the course of these displacements. Loss of appetite, or a depraved condition of it; constipation, (often due to direct mechanical action, as in cases of retroflexion;) tympanites from accumulation of gas in the intestines; torpidity of the liver; and great variableness in the amount of urine secreted—may be mentioned here. Sometimes anything taken into the stomach becomes so excessively acid as to affect the teeth, and is rejected in that state. Dr. *Peebles* regards this condition as peculiar to uterine derangements. Diarrhœa exists but rarely. From all these causes, the patient becomes thin and sallow, and prematurely old.

2. Finally, anæmia and all its effects ensue from the causes of malnutrition, just mentioned, and the circulatory system, of course, also suffers; this condition also reacting on the functions of the cerebro-spinal nervous system, as before explained. The action of the heart becomes irregular and feeble, or greatly excited—symptoms giving the patient great distress and anxiety; and the minute vessels lose their power of controlling the circulation. Hence those sudden flushes of the face without assignable cause, which so annoy this class of patients. I have, in several instances, seen a permanent blush, in such cases, of the whole neck and upper part of the chest; and the application of a sinapism to the surface sometimes produces an unexpectedly severe result, even endangering sloughing of the skin.

I have spoken thus at length of the constitutional symptoms of uterine displacements, since they alone are often treated to the entire

neglect of their cause, and with the hope of thus putting you upon your guard against the commission of such an error.

I.—PROLAPSE OF THE UTERUS.

This displacement is also variously termed *descensus uteri*, *prolapsus*, and *procidentia*; and by patients themselves, falling of the womb. It is a displacement downward, without inversion, of the whole uterus.

Dr. Meigs maintains* that "*prolapsus uteri* is an affection of the vagina, and not of the womb itself; cure that canal, and you will find the womb cured also." If merely intended to inculcate the practical fact that prolapsus generally requires mechanical treatment applied *per vaginam*, this assertion has an appearance of correctness; but as a definition of prolapsus, or as a literal expression of fact, even in regard to treatment, it is very objectionable, and quite untenable.

1. It does not designate the particular affection of the vagina which prolapsus is, and therefore does not define the latter at all. It must refer to the shortening, or inversion, or both, of the vagina; but these are not prolapsus uteri. If so, this expression would be quite superfluous.

2. Dr. Meigs' assertion identifies prolapsus with its effects. The uterus can be displaced downward only by falling into the vagina, and descending in the course of this canal. And since the vagina is attached above, around the cervix, as before explained, that portion must descend with the cervix uteri, and inversion of the vagina from above downward must ensue. Inversion of the vagina is, therefore, a direct and necessary effect of prolapsus uteri, and this inversion, of course, produces a virtual shortening of the vagina as a secondary effect of prolapsus. Inversion and consequent shortening of the vagina are therefore not prolapsus, any more than deformity of a limb is fracture.

3. This proposition also exemplifies the *prima facie* inconsistency of asserting that a particular condition of one organ is an entirely different condition of another organ; as if I should say that derangement of the stomach is inflammation of the eyes.

4. Finally, the assertion that the prolapsus is cured by curing the vagina, is not strictly correct in any case of prolapsus, and is the very reverse of correct in most cases. For, in very many cases, the cure is effected by treatment applied to the uterus directly, and not to the vagina at all; while it is directly applied to, and for the sake of cur-

* Woman and her Diseases, p. 200.

ing the vagina, only in the proportionally very few instances in which a disease (as relaxation) of the vagina was the original cause of the prolapsus. A pessary, even, is usually applied, not to cure the vagina, but to keep the uterus from descending into the vagina—*i. e.*, to cure the prolapsus, and thus allow the vagina to resume its normal condition.

I have made these remarks to guard you against the idea that the treatment of prolapsus should be directed exclusively to the vagina; which the assertion I have objected to might lead you to adopt. For we shall see that it should be instituted far more to remove the causes of prolapsus, than to cure its effects. The following proposition, therefore, though liable to most of the objections I have raised to the one I have quoted, is much to be preferred to it: "Inversion, with consequent shortening, of the vagina, is prolapsus uteri; cure the prolapsus, and the vagina will be cured as a matter of course."

Prolapsus uteri may, therefore, be defined to be, *a descent, without inversion, of the uterus into, or through the whole of, the vagina; necessarily producing a proportionate inversion and consequent shortening of that canal.*

It is the most common form of uterine displacement. It may occur in all ranks and conditions of society, in the married and the unmarried, and at all ages. Dr. Alexander Monroe speaks of an instance in a child but three years of age. It, however, occurs more rarely in the virgin state, unless from some malformation, than the second class of displacements. It is the most common in those who have borne children, and quite often occurs after rupture of the perineum.

The average distance of the os uteri from the ostium externum is (Lect. 1) $3\frac{1}{2}$ inches; though, in some cases, it is not more than 2 inches. Still, so short a vagina does not at all necessitate prolapsus, though it may well be regarded as a predisposing cause. The uterus may also descend to any extent into the vagina, until it is at last completely extruded through the ostium externum, and the vagina is completely inverted.

Three degrees of prolapsus will, for practical purposes, be recognized. In the

First—the cervix uteri falls only so as to rest on the posterior wall of the vagina; *i. e.*, through the upper third or less of the vagina.

Second Degree—the cervix uteri rests on the internal surface of the perineum, or descends to the ostium externum.

Third Degree—the uterus is entirely extruded, and the vagina is, consequently, completely inverted.

Various terms have been applied to these degrees of prolapsus, and the following arrangement may prevent confusion:

First Degree.—Incipient prolapsus, (Churchill;) delapsion, (Davis;) relaxation.

Second Degree.—Procidentia, (Churchill;) prolapsion, (Davis;) semi-prolapse, (Boivin;) delapsus, (Kulm.)

Third Degree.—Complete prolapse, (Churchill;) procidentia, (Davis.) Nanche and some other French writers include the first two degrees of prolapsus under the term “relachement,” while the third or complete prolapse is called “descente.”

The relations just specified of the parts in complete prolapsus are shown by the following cut, which is somewhat improved from Churchill's work on the Diseases of Women.

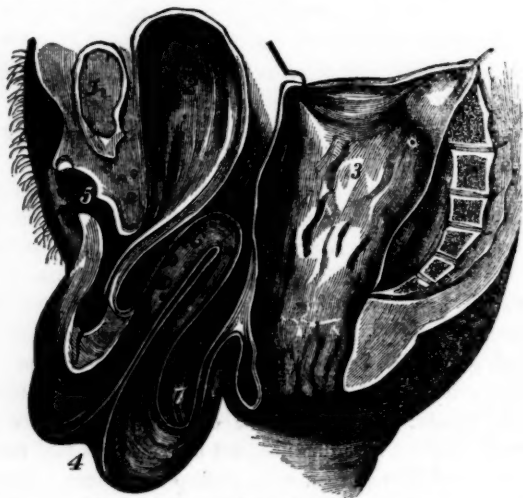


FIG. 3.

Right half of the bisected pelvis in case of complete prolapsus. 1, symphysis pubis; 2, fundus of the bladder, the base being drawn down to form part of the external tumor; 3, rectum; 4, os uteri; 5, urethra, much dilated, and showing the direction the catheter must take; 6, fundus uteri; 7, cavity behind the body of the uterus, usually containing convolutions of the intestines, as does also the cavity seen in front between the uterus and the bladder. The anterior wall of the rectum also sometimes falls down into the cavity, 7.

Evidently, the uterus cannot descend through the curve of the vagina without continually changing the inclination of its long diameter to the superior plane of the pelvis. The cervix must come farther and

farther forward as it descends, and the fundus uteri fall proportionally backward; and thus a degree of retroversion necessarily attends on the first and second degrees of prolapsus. Some maintain that this movement of the fundus backward necessarily implies an elongation of the round ligaments; and therefore, that relaxation of these ligaments is indispensable to, if not the main cause of, prolapsus. Since, however, the cervix comes forward in proportion as the fundus inclines backward, no essential elongation of the round ligaments is necessitated, it would seem, till the third degree is reached, when they become stretched by the weight which is brought to bear upon them. Their relaxation and elongation is, therefore, quite as often an effect as a cause of prolapsus. A previous elongation would doubtless predispose to prolapsus, but far more to retroversion or retroflexion.

In the third stage of prolapsus, the entire uterus being extruded through the vulva, the vagina, being completely inverted, will be seen extending *upward* from the cervix uteri to the vulva, and inclosing a conical mass, which consists of the uterus, a part of the bladder and of the rectum, and generally also of some convolutions of intestines. The abnormal position of the bladder often leads to retention of urine; and to relieve it a male catheter must be used, with its convexity presenting downward.

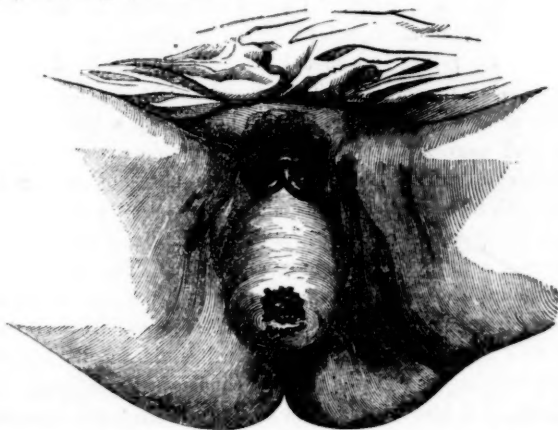


FIG. 4.

Extensive ulceration above and in front of the os uteri, in a case of complete prolapsus.

In the third degree of prolapsus, ulcerations also very frequently occur from the contact of the clothing, on the lower portion of the

extruded mass; and sometimes the prolapsus is irreducible. Fig. 4 gives a very good idea of the case of the Mexican woman whom you will recollect as having recently come before you. It also shows the ordinary form and relative size of the mass extruded.

The *causes* of prolapsus are quite numerous. Some would render this a very simple matter by referring prolapsus to a relaxed state of the vagina as its principal cause. This state of the vagina does not, however, induce prolapsus, if the agency of the other natural supports of the uterus is still unimpaired. I must refer you to the account of these supports given in my first lecture, and also give some account of the relations of the levator ani muscle, before we can arrive at an explicit understanding of this subject.

The *direct* supports of the uterus are the broad, the round, and the utero-rectal ligaments; to which add the posterior wall of the bladder, and the vagina also, provided it maintains its own tone and normal position. Its *indirect* supports are the rectum, the levator ani muscle, and the perineum; *i. e.*, if the direct supports fail, these latter may arrest, or even prevent displacement; and on the other hand, these failing to maintain their normal relations, such failure may predispose to, or even produce, displacements. It is mainly prolapsus which is produced by the failure of the indirect supports of the levator ani, and, therefore, I have deferred till now my remarks on this muscle.

The two levator ani muscles together constitute the whole contractile floor of the pelvis, and should together be regarded as a single muscle, as is the diaphragm. Thus considered, it presents a concavity upward, (or it is depressed like the bottom of a bowl,) while the rectum and vagina traverse it, (as the œsophagus passes through the diaphragm,) on the middle line. The fibres of the muscle are blended with those of the two canals as they pass through it, so that they are firmly connected with it at these points, and must be elevated or depressed with its contraction or relaxation. The quiescent condition of the muscle being that in which it is depressed in its central portions, (or is concave upwards,) it raises its middle portions more nearly to a horizontal position in the pelvis during its contraction, and thus necessarily elevates the two canals just mentioned. On the other hand, if it lose its tone, and becomes relaxed and more depressed in its central portion than usual, these canals must be drawn lower down than usual. Even the perineum at last becomes relaxed in such cases; a very common thing in the aged of both sexes, in whom it is seen, on an external examination, bulging downward. In these circumstances the antagonism between the diaphragm at the upper limit

of the abdomen, and the levator ani, at the lower, is destroyed; for while, normally, the levator reacted against the diaphragm, and returned to the latter, by its contractile force, the pressure received from the mass of abdominal contents from the contraction of the diaphragm, it has now lost its power of resistance, and the abdominal viscera are now crowded downward by the diaphragm upon the pelvic, and the latter upon the floor of the pelvis, without hindrance. It is, therefore, very easy to perceive how loss of power in the levator ani may predispose to, or may even produce, prolapsus uteri; and as rupture of the perineum presupposes a diminished force of this muscle, this condition also frequently results in this displacement. Therefore,

I. The *predisposing* causes of prolapsus (and these alone may frequently produce this displacement) are:

1. *Agencies which weaken the natural supports of the uterus*; and first of all, parturition and its consequent relaxation of the parts concerned; abortion; the process of menstruation; anæmia, and its resulting general debility. A short, straight vagina, and a relaxation of this canal from disease, may also be added under this head.

2. *Agencies increasing the weight or changing the direction of the uterus*. (1.) Dr. J. Bennett says, a heavy, swollen cervix may even produce prolapsus. Hence congestion or hypertrophy of the uterus itself; polypus uteri, fibrous tumors, scirrhus, and arrested involution after parturition. (2.) Pressure from extra-uterine tumors or enlarged contiguous organs, especially ascites, and ovarian diseases.

II. The *exciting* causes of prolapsus include several of the agencies already enunciated as predisposing causes. The general and local relaxation from uterine or other profuse hæmorrhages, menorrhagia, or prolonged and profuse leucorrhœa, may directly produce prolapsus; or any of the before-mentioned agencies predisposing thereto, a sudden effort, as in dancing, leaping, lifting, violent laughter, coughing, vomiting, or straining in defecation, may directly force the womb downward to a point, whence it does not again rise to its natural position. Certain occupations may, therefore, act as exciting causes, as that of market-women who carry heavy burdens.

This displacement will be concluded in the next lecture.

Lumbar Abscess. By JOHN S. WAGGONER, M.D., of Carlisle, Cumberland County, Pennsylvania.

It is not my object to enter into a detailed account of this disease, that is, of its pathological character, nor the peculiar constitutional diathesis which may predispose to its development, but rather to give a detailed account of one case as it occurred in the practice of my preceptor, Dr. S. B. Kieffer, of Carlisle, Pa., whilst a private student of his, involving the constitutional diathesis as it then occurred. The symptoms and the mode of treatment were, so far as I have been able to learn, somewhat peculiar, unique, and altogether successful.

Patient aged 23 years, a banker by profession, and consequently of very sedentary habits, presented himself at the office about the 1st of October, 1857. His general appearance was delicate, somewhat emaciated, and he was possessed of a lymphatic temperament, bordering somewhat on the nervous. Eyes blue, hair dark, flushed cheek, with a general pallor, denoting a vast deal of suffering, and a loss of appetite. Complained of constipation of bowels, general nervousness, want of sleep, and a severe pain in the right lumbar region; more particularly immediately about the transverse processes of the fourth and fifth lumbar vertebræ.

On examination, found considerable swelling in the part; pain increased on pressure. Patient complained also of occasional pain in the right scapula, extending sometimes into the arm and shoulder, and round in the region of the pectoralis muscle. No cough, however; no night-sweats, but sometimes paroxysms of febrile exacerbation, passing off with a feeling of extreme languor. He stated that he had a similar pain in the loins some six months previous; had been under treatment in Philadelphia for femoral abscess, which had been opened, the cicatrix not quite healed. There was also at this time a slight contraction of the anterior muscles of the leg, with some soreness, and a slight halt in locomotion. After careful examination, this case was pronounced lumbar abscess, and the opinion was entertained that from the history, as then given, the femoral abscess had had a similar origin.

The nature of the case having been fully stated, the ordinary local and constitutional remedies for abscess; with an asthenic condition of system, were prescribed, and steadily persevered with, until after a few days, very slight fluctuation was perceptible, immediately over the spine of the ilium, and quite near the vertebral column. Patient com-

plained also of slight chilliness, and the characteristic restlessness, or want of sleep. Without further delay, in order to guard against any intravasation of matter within the cavity of the pelvis, an operation was at once suggested, and an honest and frank statement made of the prognosis, which, at the time, was considered very unfavorable. The patient was directed to stand erect, and firm pressure was made over the abdomen, in the iliac region, inward and upward, whilst a curved edged bistoury was planted deep in through the lumbar muscles, to the depth of two and a half inches, as near the crest of the ilium as possible, and in such a manner as to form a slight curve; first in the direction of the opposite acetabulum, and then, with a sweep, bringing the edge of the knife upward, thus laying the tissues open freely in the centre of the tumefaction, and leaving but a small opening in the integuments. This was afterwards filled with lint, and secured by means of adhesive plaster. After the withdrawal of the knife, a small quantity of fluid, about half a fluid ounce, of a peculiar watery character, containing small flocculi of a dark-colored matter, resembling partially disintegrated blood, and small quantities of a peculiar cheesy or granulated scorbutic mass, flowed from the wound. Immediately after the operation, slight constitutional disturbances came on, attended with increased prostration; afterwards followed by a reaction, attended with considerable febrile excitement, with a rapid, though thread-like, pulse. Patient was put upon a mild though generous diet, and the following mixture:

R.—Brandy,	f. ℥ijss.
Tr. verat. vir.,	f 3ss.
Spr. æt. nit.,	f. ℥i.
M. S.—A	tea-spoonful every hour;

whilst the abscess was treated locally by means of iodine applied to the surface, and the constant application of stimulating fomentations and poultices. This course was continued from twenty-four to thirty-six hours, with slight variations, as the symptoms indicated. Pressure was occasionally made, as before intimated, firmly, though gently, over the abdomen in the iliac region, invariably attended with a discharge of the same peculiar fluid, which increased very much in quantity after the first eighteen hours. The character of the discharge now became more bloody, and at the expiration of about forty-eight hours the most violent constitutional symptoms began to manifest themselves, attended with extreme prostration, great chilliness, and tumefaction of the affected part, followed in a few hours with a febrile reaction again; violent jactitation of all the muscles of the

body; extreme restlessness, and want of sleep; appetite entirely gone; discharge from the bowels, induced by means of mild enemata, and the discharge from the kidneys scant, and highly colored.

Fomentations were still continued, and pressure was applied occasionally, as before. Patient was ordered brandy and egg, with a little sweet cream; and, as an anodyne diaphoretic and tonic mixture, was ordered to have the following:

R.—Morphia sulphas,	gr. iij.
Strychninæ,	gr. iss.
Camph.,	gr. v.
Ipecac.,	gr. ij.
M. f.—Pil. No. 20.	S. one every two hours.

The limb was now very much contracted, so that it could not be straightened without intense suffering. The redness and swelling in the lumbar region were very much increased, and a return of decided chilliness indicated a speedy degeneration of the tissues into pus. The same treatment still continued, with the addition of brandy; and the original design of extracting the pus from the abscess, over the brim of the pelvis, by means of an exhausting syringe, was fully adopted. Accordingly, a glass syringe of about two ounces capacity, with a nozzle fine, but two and a half inches long, was introduced into the cavity of the abscess, which was easily accomplished, owing to the nature of the cut originally made through the tissues. By this means at least five ounces of granulated, still unhealthy matter, were extracted from the abscess. Iodine and poultices continued locally, and the violent symptoms of jactitation and pain having in a great measure subsided, patient was ordered fifteen drops of the tr. ferri chloridi in brandy and water, every six hours, and the occasional use of good wine and brandy, as the case seemed to require. With this treatment and the frequent use of the exhausting syringe, (at least twice a day,) always having an assistant to make pressure over the ilium, as before intimated, during the operation, the symptoms gradually improved; patient became more comfortable, and the character of the pus more healthy; and after two or three days the pus became very copious, and altogether laudable. From two to three ounces of matter were now extracted regularly, twice a day, for several days. No change in treatment. The discharge of healthy matter having been well established, to stimulate healthy granulations was now considered very important, and accordingly the following course was adopted and steadily persevered with. Surface over the dorsum of the ilium, the lumbar vertebra, and upward to the extent of six inches square,

was regularly painted with the tincture of iodine twice a day, freely enough just to keep up a constant desquamation. Stimulating poultices of oat-meal, yeast, brandy, and pulverized elm bark were continually applied. Patient was ordered syr. ferri iodide, fifteen drops in brandy and water, three times a day, with the free use of ale, porter, and brandy, together with a good, nutritious diet. Appetite gradually improved. In connection with above, the matter was still regularly exhausted to the amount of from half an ounce to an ounce per diem; and the abscess was now also regularly washed out by means of a solution, as follows:

R.—Aqua calcis,	f. ℥iv.
Tr. iodini,	f. ʒij. M.

Inject into the cavity, and again extract after each operation for extracting the matter. It may be well to state, that it mattered not what position the patient might assume, there was in no case, after the abscess had been fully developed, any spontaneous discharge of matter, except occasionally, perhaps, a few drops. With this local and constitutional treatment, patient (now almost eight days after the operation) began to improve rapidly; pain and swelling subsided gradually; the cavity filled rapidly by granulations, whilst the orifice was kept open by means of lint, just large enough to receive the instrument.

The limb gradually returned to its normal position, whilst the femoral abscess, which had not been quite healed, now closed. Appetite and strength improved rapidly; the spirits, which had been much depressed, revived and became buoyant, and the general health was thus, after a period of about three weeks from the operation, sufficiently restored to enable him to start upon a journey, from which he returned again after a fortnight, apparently convalescent. The application of iodine was continued, however, for several months, when the tenderness over the lumbar vertebra also subsided. Since then, although more than two years have now elapsed, there have been no symptoms of a return of the disease.

On the Resuscitation of Infants Born Still. By WILLIAM C. ROGERS, M.D., Green Island, Albany County, N. Y. Second Article.

In the writings of standard obstetricians, and in the periodical literature of the profession, I have found, up to the publication of my first article, no analysis of the various conditions of the still neonatus, and I accordingly sought to supply this want. I accumulated my material,

published my first article, and was reading and reflecting for my second, when Dr. T. Gaillard Thomas, of New York, kindly sent me a copy of his valuable "Lecture on Suspended Fœtal Animation," in which he throws the clear light of science upon the still neonatus, and thereby increases the resources of our art in the management of these important and trying cases. As he has thus anticipated me in my labor, I shall make free use of the materials he has placed in my hands, hereby acknowledging my indebtedness to him, and shall add thereto that which my reading, reflection, and experience have led me to consider pertinent and valuable.

1. *Of the Conditions of the Still-Born Child.*—The neonatus may suffer from—a, Asphyxia; b, Syncope; c, Cerebral Congestion; and from, d, Apoplexy. (Thomas.)

a. OF ASPHYXIA.

Asphyxia is a suspension of the function of respiration, independent of the motions of the heart, or of the circulation of the blood. In *asphyxia neonatorum*, placental respiration is either imperfectly performed or has entirely ceased, while pulmonary respiration has not been established. As a consequence, the blood becomes rapidly surcharged with carbonic acid and the detritus of the fœtal system, and is propelled to the lungs. Here the normal reactions between the blood and its surroundings cannot take place, because of the absence of atmospheric air from within the pulmonary vesicles, and the abnormal condition of that fluid within the pulmonary capillaries; and hence arises accumulation of blood within the venous, and diminution of blood within the arterial system, with congestion of the lungs, and of the right side of the heart. The carbonized blood, circulating in the brain and nervous centres, feebly stimulates or utterly paralyzes them; no nerve-force is evolved, respiration is not established, and we may have for a season active motion of the heart, and circulation of venous blood without coincident respiration.

Such is, in brief, the physiology and pathology of asphyxia. Its causes may be dependent upon, 1st, the condition of the mother; 2d, upon the condition of the uterus and placenta; 3d, upon the condition of the cord; and 4th, upon the condition of the child.

1st. *Causes Dependent on the Condition of the Mother.* The principal of these is *maternal toxæmia*.

The maternal blood, passing from the uterine into the placental sinuses, washes the vast mass of fœtal tufts of which the placenta is formed, and by the processes of endosmose and exosmose, of exhalation

and absorption, absorbs carbonic acid and the detritus of the foetal system from, and imparts oxygen to, the blood of the foetus. The placental circulation is thus virtually respiration, analogous in all essential respects to the bronchial respiration of the fish; since the maternal blood, containing oxygen, in washing the foetal tufts of the placenta, performs the same functions for the child that the water containing atmospheric air, and washing the blood-vessels of the bronchiæ, performs for the fish. And it is evident that the analogy may be traced still further. If the water in which the fish is respiring is not renewed, its oxygen is soon exhausted, and the fish dies asphyxiated; and in like manner, if the maternal blood be not depurated, or if it be not renewed from any cause, asphyxia and impending death is the result. When the mother's blood is not depurated we have maternal toxæmia or uræmia—a condition characterized by the presence in the blood of urea, or the carbonate of ammonia,* in abnormal quantities. This uræmic condition of the mother's blood gives rise to puerperal convulsions, which are even more fatal to the foetus than to the mother. Of 185 cases of puerperal convulsions cited by Churchill and his American editor, 47, or about *one-fourth*, were fatal to the mother; while Braun estimates the infant mortality in this disease at 45 per cent. Ramsbotham records 18 cases of puerperal convulsions occurring before delivery in 48,682 deliveries, the infant mortality of which was 12 in 18. Dewees records 8 cases in which 4 children were born living, 2 dead, and in the remaining 2 the mothers died undelivered. Collins records 30 cases in 16,654 deliveries, in 14 of which the children were born dead, 2 were putrid at birth, and 14 were born living. What proportion of these cases depended upon uræmia we have no means of knowing, nor have I anywhere seen an estimate of the probable proportion of cases of puerperal convulsions in the hundred depending upon this condition, but it is undoubtedly very great. The causes of the great foetal mortality in this fearful complication of labor are, 1st, circulation of carbonized blood through the placental sinuses, gener-

* A résumé of all that is known of uræmia is much needed. The whole subject is so little understood, the results of the experiments of Frerichs, Richardson, Hammond, and others, are so contradictory, and the nature of the disease so obscure, that we are scarcely warranted in affirming anything of it positively, beyond its mere phenomena. These are not sufficiently developed to admit of comprehensive generalization; and until such generalization is possible and satisfactory, we are not warranted in arguing from our present theories as though they were truths, comprehending and satisfying all the relations of all the phenomena.

ated by the arrested or imperfect respiration of the mother; 2d, absorption of urea and the carbonate of ammonia from the maternal into the foetal circulation; (?) and 3d, partial or complete closure of the uterine sinuses by the spasmodic action of the abdominal muscles.

Statistics would, without doubt, show a greatly diminished maternal and foetal mortality in uræmic convulsions since the use of chloroform in this disease, but whether or no this diminished mortality could be attributed to the effect of the chloroform in preventing the decomposition of urea into the carbonate of ammonia by producing a temporary diabetes, as Prof. Simpson supposes, must be regarded still as a very open question. Braun makes the following assertion: "If, after numerous uræmic convulsions, the child is born alive, a large quantity of urea is found in the blood taken from the umbilical cord; but if it is born dead, we can immediately after the birth demonstrate the presence of carbonate of ammonia in the foetal blood."

Tyler Smith says, "It is found that children born alive after (puerperal) convulsions are affected with uræmia or albuminuria, and that this condition lasts in some cases for a considerable time after birth. Sometimes children born alive under such circumstances have themselves died subsequently of uræmic convulsions." "A large proportion of the children in such cases are born dead." (*Obstet.*, Gardner's Edit., p. 623.)

An interesting case, illustrating the effects of a toxic condition of the mother's blood upon the fœtus, is recorded by Dr. W. H. Thayer in the *Trans. N. H. Med. Soc.* for 1857, p. 94. Dr. Thayer was called in consultation in the case of a woman who had been in labor 38 hours; he administered ether, and delivered by the forceps. The child was born still, and resisted all efforts at resuscitation for ten minutes; the umbilical cord was then cut, and allowed to bleed a few jets before the ligature was applied; efforts at resuscitation were renewed, and in ten minutes more were successful, when "*the breech of the infant had a decided odor of ether.*" The mother returned to consciousness about the time the child was resuscitated, thirty minutes after the ether was discontinued. The mother was fully etherized at the time the umbilical cord was cut; the placental circulation was not suspended; the establishment of respiration followed shortly after the division of the cord, having been delayed "by embarrassment of the circulation due either to hyperæmia or the presence of ether in the blood."

2. *Causes Dependent upon the Condition of the Uterus and Placenta.*
—These causes are, firm and abnormal contraction of the uterus, whereby the uterine and placental sinuses are closed; partial and

hour-glass contractions of the uterus, and partial or complete separation of the placenta.

Of the first of these, Dr. Thomas remarks: "After a labor has lasted many hours in the second stage, or after the administration of ergot at any period of the stage, the uterus not only exerts its contractile powers by alternate and intermitting contractions, but closing firmly, as it were spasmodically, upon the child, it enters into a constant and unintermitting contraction, the power of which they can testify to whose arms have been nearly paralyzed by the performance of the operation of version. Now, this firm and unnatural contraction of the organ presses the spongy mass, the placenta, firmly against the child's body, closes its pouches, in which the mother's blood flows over the fetal tufts, and obliterates the uterine sinuses through which that blood passes to the placenta. It is, in fact, only an exaggeration of that state which we produce by rupturing the bag of waters to check hæmorrhage in the first stage of labor; and exactly the same principle is developed that we employ when we bind a billiard-ball firmly in the palm of the hand to check hæmorrhage from the palmar arch."

Dewees devotes five pages to the consideration of "Partial Contractions of the Uterus," in which he shows that the os may contract firmly about the neck of the fœtus during labor, thereby not only delaying the progress of labor, but imperiling the child by the induction of asphyxia. I have met with no cases on record where this latter result has been ascribed to this cause, but a moment's reflection will show us that it might very easily occur; and in cases where the labor seemed delayed from other than the ordinary causes, such as rigidity of the soft parts, insufficient pains, &c., a more careful examination might discover this condition of the organ. The same remarks will apply with equal force to hour-glass contractions of the uterus, whereby the body of the fœtus is so pressed by the contracting segment of the organs, as to arrest circulation in the cord, to induce cerebral congestion, apoplexy, or fatal asphyxia. Records of cases of this kind I have found in my reading, but, having lost the references to them, I am unable to re-record them in this place. The following case of very recent occurrence is in point:

A professional friend of mine was recently called in consultation in a case of contracted pelvis, the child's head, though of the usual size, but of unusual firmness, being too large to admit of natural delivery. He rectified the position, and waited in vain for the natural efforts to complete the delivery. He then applied the forceps, but with no better success. He then performed craniotomy, and with the crochet

It is my intention to present these statistics in full to the profession as soon as present engagements will permit.

Of rupture of the umbilical cord as a cause of asphyxia neonatorum I have found many recorded cases, but, unfortunately, have mislaid my notes and references. The majority of these cases occurred in the earlier months of pregnancy; and those which occurred during the later months, when the child is considered viable, gave evidences of fatty or other degeneration of the cord and placenta, and were accompanied by the birth of illy-developed, and doubtless non-viable, children. The further consideration of this cause, then, promises but few useful results in this connection.

The twisting of the cord about the child's neck is a frequent cause of asphyxia. Nos. 16 and 22 of Article first are cases in point, and the experience of every practitioner will furnish many such.

4. *Causes Dependent upon the Condition of the Child.*—These may be a natural feebleness of constitution, incapacitating the child for the spontaneous muscular exertion necessary to establish respiration, or a similar incapacity produced by long-continued pressure upon the brain, (Collins,) and an accumulation of mucus or liquor amnii in the trachea, pharynx and mouth, so great and so tenacious as to resist the child's feeble efforts at respiration or dislodgment. The first cause is frequently active in premature children of the seventh and eighth month; the last to a greater or less extent in almost every child at birth.

Symptoms.—"The fauces of the asphyxiated child is eloquent in telling of the lesions; the face is dusky, the lips purple and pouting, the eyes glassy, and the limbs unyielding, and not flaccid, as in syncope. The heart may be felt beating feebly, or not at all; or its strokes may be intermittent, while there is not the slightest effort at respiration."—(Thomas.)

Prognosis.—The prognosis will depend, in a very great measure, upon the condition of the heart. If that organ continues to pulsate ever so feebly, our efforts to resuscitate may be successful, and should be continued as long as the heart is in action. This is illustrated by the cases adduced in the first article, twenty-four in number, in which the average period intervening between birth and the establishment of respiration was 35 minutes, 30 seconds. The seven exceptional cases adduced therein, in which respiration was not accomplished in periods ranging from 20 minutes to 7 hours, increase the average to 50 minutes of suspended foetal animation. Mr. Tompkins, a former student of Dr. Blundell, reported a case to that gentleman, of a child recovered under the use of resuscitants, continued for a period of one hour and

five minutes before obvious signs of life appeared.—(Blundell, p. 117.) The prognosis, then, may be regarded as favorable as long as the heart is in action; unfavorable the instant that organ ceases to beat.

Treatment.—The indication in the treatment of asphyxia is to excite the function of respiration, by which means the normal relations existing between the pulmonary capillaries and their contained blood may be restored, or rather established. The blood yields up its carbonic acid to, and absorbs oxygen from, the air; pulmonary circulation begins, and pulmonary congestion diminishes, *pari passu*; the general circulation is re-established, nervous force is elicited from the centres, and the infant begins its independent life. The great desideratum, then, is respiration. How shall it be established?

The experiments of many observers seem to prove that the liquor amnii penetrates during intra-uterine life as far as the bronchiæ, (Velpéau.) Hence the necessity of cleansing the trachea, pharynx, and mouth, by placing the child's mouth downward, with the body and hips higher than the head, and by gentle shakes disengaging the contained fluid, or by the finger, previously protected by a soft rag, introduced well into the pharynx. This is to be premised when necessary, no matter what the condition of the child, or what means are to be used for its resuscitation. The minor remedies for asphyxia are now to be tried, such as frictions, blows upon the nates, back and thorax, irritation of the nares and throat, exposure to draughts of cold air, and like measures, calculated to awaken nervous energy and excite reflex actions. These, in the majority of instances, are sufficient; but should they fail, recourse must be had to artificial respiration, which may be executed by the mouth-to-mouth process, by the tracheal pipe, by manipulations of the chest, or by the Ready Method of Marshall Hall.

In the mouth-to-mouth process, the accoucheur's mouth is to be placed to the child's mouth, the nares are to be closed, and gentle pressure made upon the larynx, so as to close the œsophagus by pressing it against the cervical vertebræ, that no air may enter the stomach; and then the child's lungs are to be gently, but forcibly, inflated, and allowed to empty themselves by their own elasticity, or by gentle pressure upon the thorax and abdomen.

The tracheal pipe is to be introduced along the index-finger of the left hand, previously inserted into the rima, and used as a director. Examination in front of the neck will show whether the tube be in the trachea or not. If in, the infant's lungs are to be slowly, gently, and yet forcibly inflated, and emptied, as in the process above stated.

There should be from 20 to 30 respirations a minute, corresponding in number to the respirations of the quick neonatus. Dewees used this means of exciting respiration for nearly forty years, with almost uniform success. Velpeau recommends the use of a quill-barrel, a female catheter, any kind of canula, or a simple gum-elastic catheter. In the first article will be found four successful cases of its use reported by J. Toogood, Esq. Next to the Ready Method, this is unquestionably the most valuable means at our disposal for the restoration of suspended foetal animation.

Another process is the alternate elevation and depression of the thorax by the fingers inserted well under the edge of the ribs. Dr. Pitcher, of Hudson, informs me that he has used this process to the exclusion of all others for many years, and with such a measure of success that he is not inclined to abandon it for any other. It commends itself for its simplicity and the ease with which it may be executed.

It now remains to consider the Ready Method of Marshall Hall, which, since its first successful adoption, in February, 1857, has practically superseded all others. The method itself I need not describe. It is only necessary to clear the trachea and pharynx, draw the tongue well forward, and rotate the child, *s. a.* from 20 to 30 times in the minute. Of all the methods which I have used, this is by far the most successful. A half dozen rotations will suffice in ordinary cases to remove profound asphyxia. Eleven of the 24 cases recorded in article first were restored by this method, after an average duration of suspended animation of 27 minutes. In the course of my reading, I have found but one practitioner who prefers the mouth-to-mouth process to the Ready Method, and that is Dr. A. T. Keyt, of Cincinnati, who, in the *Lancet and Observer*, for January, 1860, presents the following in substance: The still neonatus has never respired; its air-vesicles have never been opened; its chest has never been expanded; its chest and lungs are, then, devoid of elasticity; and its condition is not justly analogous to that of the asphyxiated adult. The capacity of its chest could be but little, if any, diminished or increased by the rotation process. He therefore prefers the mouth-to-mouth process, and reports cases of comparative trial. In one he says: "At least an hour elapsed before the child gave a gasp, and two hours before it could be left to do its own breathing. My dependence was upon the *mouth-to-mouth* process; by it I found no difficulty in controlling the circulation. It seemed as though the heart's action might have been thus maintained indefinitely. The 'Marshall Hall Method' was tried, but the results were negative; under it pallor and lividity would return to the sur-

face, and the circulation grow gradually more and more feeble, until the heart's action would plainly have soon ceased, had it not been timely aroused by a more *ready* and *efficient* method. Several times did I alternate the new method with the old, and just as often did I witness the same striking contrast of phenomena." (Quoted from AMERICAN MEDICAL MONTHLY, March, 1860, p. 200.) This is a very interesting experience, and commends itself to the profession. Its lesson is, rely not too exclusively upon any *one* method of resuscitation, but be completely armed by being practically familiar with all. But, while Dr. Keyt's theoretical argument against the Ready Method is well grounded so far as his cases and experience go, it is not equally well grounded upon the cases and experience of others. This is evident from the eleven cases adduced in my first article, and from experiments first made by Mr. Hall himself, and afterwards repeated by Dr. Thomas before his class and detailed in his lecture, so frequently referred to. The mouth and one nostril of a still-born foetus were closed securely by adhesive plaster, and in the other nostril a caoutchouc tube was inserted, having a bent glass tube containing water attached to its outer end. Pronation and rotation were then performed, according to M. Hall's directions, when bubbles of air would rush through the water to and from the lungs.

Here is a demonstration of the fact, that in *some* instances at least the still neonatus may be made to breathe, though *theoretically* its chest and lungs are devoid of the elasticity so requisite for the performance of this method. In my opinion, Dr. Keyt errs in condemning the Ready Method too emphatically in such cases, while Dr. Thomas errs in asserting too confidently that this is the *only* method by which artificial respiration can be effected. While I regard this method as by far the best and most philosophical yet devised, (since it introduces pure air into the child's lungs, and not the carbonized air of the accoucheur's lungs,) I prize the other methods adduced above as valuable beyond all price, and not to be discarded on any considerations. In this, as in other matters, professional and extra-professional, *in medio tutissimus ibis*.

I have said nothing as yet of the warm and cold baths so generally recommended and used in the resuscitation of infants born still. A reference to the nature of asphyxia shows that it is of the utmost importance to know which to use, the warm or the cold bath, and which to discard. In this state we have congestion of the lungs, repletion of the venous, with partial emptiness of the arterial system, and a languid circulation of carbonized blood. By establishing artificial respiration we

induce the normal chemical changes in the blood, relieve the congestion of the lungs, replace the venous with arterial blood in the systemic circulation, and thus relieve the general venous congestion. But in conducting this process we must be careful to preserve the true relations existing between respiration and circulation. Should the circulation not increase *pari passu* with the respiration, we have a constant loss of temperature from within, and no alleviation of the symptoms. Our remedy in this state of affairs is the warm bath, whereby the cutaneous circulation is increased, and frictions with pressure upward, whereby the circulation is hastened. On the other hand, should the circulation be too rapid, inducing additional congestion of the lungs, and deepening the asphyxia, our remedy is the cold bath, whereby we constrict the cutaneous capillaries, retard the circulation, and diminish the pulmonary and cardiac congestion. We at the same time prevent the too rapid carbonization of the blood in the systemic circulation, thus partially arresting the generation of carbonic acid, which becomes a blood-poison when not eliminated by the respiratory process. Both the warm and the cold baths are also useful as stimulants to arouse the energies and excite the reflex actions of the nervous system.

If, however, we should not succeed by the process above given, we must have recourse to the cold bath. All animals bear a diminution of respiration in proportion to the diminished force and frequency of the circulation, and these latter phenomena are induced by cold, externally applied. Hibernating animals will scarcely drown at all, and warm-blooded animals drown much sooner in warm than in cold water. These facts, first announced by Dr. Haighton and Sir Anthony Carlisle, (Blundell, *op. cit.*, pp. 116, 117,) and afterwards confirmed by Milne-Edwards, Brown-Séquard and Marshall Hall, taken in connection with the experiments and conclusions of Legallois, given in the February number of this *Journal*, all have an important bearing upon this subject. They show that if we would preserve the viable asphyxiated neonatus, we must bear in mind the law of the correspondence between the circulation of the blood and the respiratory process, and must direct our efforts to the maintenance of respiration, whereby we decarbonize the blood, and control the circulation, by the warm and cold baths and frictions, into correspondence with the respiration which we execute.

The Treatment of Paralysis of Motion. By CHARLES F. TAYLOR, M.D.

IN the MEDICAL MONTHLY for November, 1858, in an article under the above title, I pointed out the method to be pursued in order to re-establish the control of the will over the muscles when this control has been suspended by any cause capable of interrupting the conducting power of the nervous tracts. I showed how, either by a process of exclusion—that is, by excluding from the conditions under which an effort is made, all tendency to movements other than the designated ones—the will could be most efficiently brought to bear on the paralyzed muscles; or by a process of concentration—that is, by causing such a position to be assumed, muscular effort will increase towards the paralyzed parts, accumulating, as it were, in these parts; and in either case, at the same time avoiding the expenditure of nervous or muscular power upon the non-affected parts, which are always most easily stimulated; and when allowed to act, (as in ordinary exercise,) absorb, as it were, the whole nervous force into themselves, and thus virtually rob the paralyzed muscles of their fair share of stimulus; and that by continuing thus, carefully to make every motion intended to be curative, following it up, day after day, the conducting power of the nerves and the contraction of the muscles, would be manifested, even where neither were perceptible at first; and that, ultimately, a large amount of the lost function might, in many cases, be regained, as illustrated, by the cases presented. Subsequent experience has confirmed every position assumed in that article, and has also added some valuable ideas, which is the object of this brief paper to present. In order to make the point more clear, the following case is related:

In December, 1858, Master D. F., aged ten years, was brought to me from the country, with hemiplegia of the left side. Five years before, that is, when he was five years old, he was kicked by a horse, in the right fronto-parietal region, detaching a portion of the skull about two by three inches large, depressing and forcing it under the adjacent parts, and considerably lacerating the brain-substance. The shattered bone was removed with difficulty, and after twenty-four hours, when consciousness returned, he was found to be paralyzed in the left side. It was nearly a year before the wound had healed, during which time, according to the history of the case, a "fungus" (?) was removed from, and an abscess had formed on, the wound. At the end of a year he was well, except the paralysis, which remained nearly unaltered

till I saw him, but for the past year, was rather growing worse. He had no use of the left arm, could only move it imperfectly at the shoulder and elbow; walked with difficulty, and could not support more than one-fourth or one-fifth of the weight of the body on the left leg. There was imperfect development over the whole left side; the chest was sunken on that side, and the muscles soft and small.

After treatment of three months, (unhappily stopped, at that time, from an attack of gastritis,) there was a remarkable increase of strength, and of voluntary control over the muscles, so that he could stand on the left foot for fifteen minutes; could climb a ladder, using both hands; and there was evident increase of muscular development through the whole side.

Just one year from the time he commenced, namely, in December, 1859, he resumed his treatment at my office. The development which had begun the year before, had kept steadily on. The chest and shoulders were symmetrical, so that the wadding before placed on the left side of his coat to make the shoulders appear even, had to be entirely removed; and he was stronger throughout that side. But here comes the most interesting part, so far as treatment is concerned. I observed in his case what I have observed in many other cases, that while the muscles might be brought under the *control* of the will, while they would act correctly and strongly, they would not act *readily*. In this case, though the muscles of the left leg were strong and would move as wished, they would act only tardily.

He had muscular strength enough to walk without limping, yet he limped. When he stepped with that foot, there seemed to be an interval of time after the effort before the action. The leg would partially give way for a moment, under the weight of the body, before the muscles would contract so as to sustain him firmly upon it. And yet, when this contraction did take place, it was sufficiently powerful. Hence the conclusion, that in the physiology of muscular motion there is a difference between certainty and readiness of action.

It occurred to me, that as we can develop certainty of action by concentrating the will upon a part and *prolonging* this effort, we might secure rapidity of action by *sudden* efforts thus concentrated. I therefore adopted a system of movements involving sudden *explosions* (as it were) of effort upon the affected parts. This process was kept up for two months, with more than anticipated results. He gained nothing in strength or certainty of movement, but in readiness and rapidity of muscular action there was as much improvement as there had been

before in control of it. He can now walk with scarcely a perceptible difference in quality of movement in the two sides.

Muscular contraction follows immediately upon the effort, so that the settling down of the left side in walking, before so marked, is scarcely perceptible.

The principle of distinguishing between the different qualities of force and the peculiar kind of functional manifestation to be employed in order to secure it, has been applied in many other cases with uniformly favorable results. Another important matter in the treatment of paralysis is, to secure a good circulation of blood in the affected parts before attempting to reach voluntary motion in them. Innervation as well as muscular contraction take place only in the presence of arterial blood. Before the patient essays to move a paralyzed limb, especially at the beginning of treatment, the muscles should be stretched, (passively,) or made to act through position and reflex action, (as standing on a paralyzed leg, for instance, while held in position by assistants;) and one is often surprised to notice how readily the previously rigid muscles will move in obedience to a volition.

Out of over forty cases which I have treated during the last three years, more than three-fourths have shown marked improvement; but the most favorable of all have been those unfortunate cases of "with-ered limbs" in children, occurring from teething, (inanition,) fevers, falls, &c., when quite young.

In a subsequent communication I intend to relate a number of these cases, which, to me, exceed in interest all others combined; especially when we consider the effect of a cure on the child's future prospects in life.

29 Cooper Institute, New York.

MONTHLY SUMMARY OF MEDICAL JOURNALISM.

By O. C. GIBBS, M.D., Frewsbury, N. Y.

Dysentery.—In the *Lancet and Observer* for March, Prof. E. S. Cooper, of San Francisco, has an article upon the treatment of dysentery. He thinks very highly of ipecacuanha as a remedy in such cases. He gives emetic doses in the early stages, and small doses, with opium and acetate of lead, frequently repeated, in the more ad-

vanced stages: "say one-sixteenth of a grain of each, repeated every ten, fifteen, or twenty minutes." We have previously referred to the treatment of dysentery with large doses of ipecacuanha, which, so far as we know, was first proposed by E. S. Docker, Esq. Since we have learned the powers of Epsom salts, elixir vitriol, and morphine, in appropriate combination, over this disease, we have had no disposition to try anything new. Prof. Cooper makes one remark that is perhaps worthy of further consideration. He says, "I have found many cases in which ipecacuanha combined with extract of gentian, in the proportion of one-half grain of the former to one of the latter, every hour, acted almost like a charm in the advanced stages of protracted cases, where other remedies had only produced a palliation of the symptoms."

We must protest against the consideration of *dysentery and diarrhœa* together, as does Prof. Cooper, as though they were allied diseases, requiring identical, or, at least, similar treatment. Cathartics, of a certain character, are always appropriate in a pure case of dysentery, while they are only judicious in a few exceptional cases of diarrhœa—*astringents* are seldom, or never, called for in dysentery, while they are nearly always appropriate in diarrhœa. It is no uncommon error for careless practitioners to confound dysentery with diarrhœa, and treat with powerful *astringents*, with the hopes of lessening the frequent desire to go to stool. We consider this a very grave error, and allude to the subject here, because teachers of medicine, more than all others, should draw a well-defined pathological and therapeutic line between the two diseases referred to.

Raw Meat.—In the *Charleston Medical Journal and Review* for March, Dr. F. P. Leverett has an article upon *raw meat* as a remedial agent. During the last year considerable has been said of it as a remedy in the diarrhœa of children. Most that we have seen upon the subject has been abstracted from foreign journals. Dr. Leverett says that Dr. Casper Morris introduced the use of raw beef into the children's ward of the Philadelphia Hospital, in the fall of 1855, and that he professed to have learned its powers over chronic diarrhœa of children from Prof. Thomas, of Baltimore; Dr. Leverett details a few interesting cases, occurring in the hospital under the care of Dr. Morris. The raw beef was not confined to the cases of children, but was equally beneficial in obstinate cases of chronic diarrhœa of adults. Dr. Leverett says he has found the remedy of much benefit in some other diseases. "In one case of chronic dyspepsia, with great irritability of the stomach, it was retained when almost everything else

was rejected. In the latter stages of typhoid fever, it proved a valuable article of diet, as I should have mentioned that it had done at the Philadelphia Hospital."

Quinine in Uterine Hæmorrhages.—In the March number of the *Charleston Medical Journal and Review*, Dr. J. S. Rich, of Georgia, reports several cases of protracted uterine hæmorrhage of an alarming character, speedily relieved by the use of quinine, after the failure of all other known means. The following are his favorite methods of administration:

"R.—Sulph. quinine, 3j.
Sulph. ferri, 3j.
Mucil. gum Arabic, q. s. ut. ft.

Pillulæ, No. xxx.

R.—Sulph. quinine, 3j.
Sulph. ferri, 3j.
Gum terebinth, 3j.

M. ft. in mass. et. div. in pillulæ, No. xxx. S.—Two to be taken morning, noon, and night."

In the *Lancet and Observer* for March, one of the editors appends the following to an item taken from a former number of our *Summary*: "We recently attended a case of uterine hæmorrhage, in connection with Prof. Richardson, of this city, which assumed a regular intermittent type, and was cured by the free administration of quinine."

Elephantiasis.—In the *Charleston Medical Journal and Review*, Dr. T. L. Ogier, of Charleston, reports a case in which he ligated the femoral artery for the cure of elephantiasis of the leg and foot. The report was made about three months after the operation, at which time the result was quite satisfactory, the swelling having subsided. Dr. Ogier wisely says, that "at least a year must elapse before the disease can be said to be permanently eradicated." Prof. Carnochan has the honor of first proposing this operation. He has successfully operated four times. Prof. Erichsen, acting upon the suggestion of Prof. Carnochan, has once tied the anterior tibial artery in the middle of the leg, with results quite satisfactory.

Hepatic Abscess.—In the *New Orleans Medical News and Hospital Gazette* for March, Prof. Austin Flint has an article upon *suppurative inflammation of the liver*. Speaking of the escape of pus through the lungs, he says, "It is remarkable how little pulmonary inflammation is often excited under these circumstances. One would suppose, *a priori*, that pneumonia would be sure to be developed in the entire lung; and the fact that it does not, goes to show that the latter dis-

ease involves in its production, general, rather than local causes. Evacuation of an hepatic abscess through the lung appears to be a conservative mode. Recovery has been observed oftener when the pus is discharged in this direction than when the abscess points to the surface, and the perforation takes place through the integument. This, *à priori*, would certainly not be expected."

This opinion is contrary to the expressed opinion of most authorities; Drs. Budd, Copland, Watson, and such others with whose views upon this point we happen to be acquainted, think that the superficial discharge of pus is the most favorable way that the pus can make its escape. It is, however, proper to note here that Dr. John Jackson, in the October number of the American edition of the *London Lancet*, advocates opinions in accordance with those above quoted from Dr. Flint.

Hydrocephalus.—In the March number of the *New Orleans Medical News and Hospital Gazette*, Dr. Marsh, of Port Hudson, reports a very interesting case of hydrocephalus, in which *paracentesis capitis* was several times performed. At the time of the first operation the patient was about nine months old. "Its body and extremities were emaciated beyond the power of pen to describe. It seemed as though there were nothing but integuments, blood-vessels, and bones left. At the same time, it had the face of an infant and the head of a man." The head measured 26 inches in its longest diameter. At the first operation "eleven ounces of fluid were drawn off, clear and pellucid at first, and of a slightly saline taste, like perspiration, but turbid at last." Sixteen days later the second operation was performed, and sixty-four ounces were evacuated, "with a very strong smell of urine." Eleven days later, sixteen ounces of fluid were withdrawn, and three days later the patient died. Dr. Marsh says, "It may be proper here to observe, that at no time after an operation could the bones of the head be compressed so as not to leave a cavity between them and the brain. As the water again accumulated, it could be distinctly heard surging from one side to another, as the child was moved."

Hæmaturia.—In the *Medical and Surgical Reporter* for March 3d, Dr. E. T. Blackwell reports a case of hæmaturia, which full doses of gallic acid, opium, &c., failed to relieve. He says, "Finding the remedies entirely fail, I ordered the bladder to be injected with a weak solution of alum, at first tepid, afterwards entirely cold. The effect was happy and rapid."

Scarlatina.—In the *Medical and Surgical Reporter* for March 3d, Dr. Gebhard has a paper upon the treatment of scarlet fever, in which he speaks very highly of *digitalis* as a remedy. He reports quite a

number of illustrative cases, in which the reported results are certainly quite satisfactory. For the last five years, during which he has used this remedy, he says he has lost but one case, and in that the remedy was brought to bear quite too late; "since that," he says, "as soon as any symptom indicated that the disease was scarlatina, or even a supposition to that effect, I have commenced the use of digitalis with a favorable result in every instance, as the cases related have fully confirmed." His method of administration was usually the following: for a patient from 4 to 6 years old, I ordered 40 grains of digitalis in 40 tea-spoonful of hot water, and when cool, to take one tea-spoonful every hour, to be continued until the entire abatement of all the symptoms."

Gelseminum.—In the *Journal of Materia Medica* for March, Dr. A. F. Patte has an article upon the properties and uses of gelseminum. We quote only the following: "Headache of the nervous kind may often be relieved, and I have found no one medicine so useful in this troublesome disease. Neuralgia, in its various forms, may be treated with this remedy, both internally and externally, with the hope of benefit. In coryza, or cold in the head, this is one of the best remedies I have ever used; it cures the severest cases in from twelve to forty-eight hours."

Indian Corn an Anti-Periodic.—In the *Nashville Journal of Medicine and Surgery* Dr. J. W. Gambling, of Kentucky, has an article upon the use of corn-meal as a substitute for quinine. He says he has administered the corn-meal in intermittent fever "to thirty patients, with satisfactory results. It prevented the paroxysms in all but two cases, and I attributed the failure to the inferior quality of the article used." He says further, "I can state with certainty that corn-meal is an anti-periodic, and as near a specific in intermittents as quinia." We do not remember of having seen the corn-meal recommended as a medicinal agent of power, previous to seeing an extract from a letter from Dr. D. B. Phillips, of the United States Navy, which was published in the *N. A. Medico-Chirurgical Review* for Sept., 1858. He there recommended it highly in facial neuralgia. In the *American Journal of Medical Sciences* for October, 1858, he reports a case of intermittent fever, cured with the same agent. Our readers will remember that, in a former number of our *Summary*, we gave Dr. Nagle's views in regard to the pathology and treatment of milk sickness. For this disease he says, "that corn-meal is an anti-periodic and specific." Bearing upon the subject under consideration, we quote the following passage from Prof. G. S. Blackie's Introductory Lecture,

published in the *Nashville Journal of Medicine and Surgery* for January of this year. "The specific for European chills has yet to be found. That for American chills is here. Our American *maize* cures our native chills, and where those chills are most abundant there most abundantly it grows." We have to regret that Prof. Blackie did not say more of this agent, of which he speaks so confidently.

Opium an Antidote to Belladonna.—Within the last few years considerable has been said in regard to the reciprocal antidotal powers of opium and belladonna. In the *N. A. Medico-Chirurgical Review* for March, Dr. A. Lopez reports a case of poisoning with belladonna, in which opium was successfully resorted to as a remedy. He says, "I was induced to test the reciprocal influential relation between the two poisons, and prescribed forthwith tinct. opii. f. 3j. aq. cinnamon. 3j. at one dose, with directions to repeat gtts. xv. every half hour, until a decided abatement of the pathological symptoms. The first dose antagonized the belladonna in less than thirty minutes after it was taken."

Anæsthesia during Sleep.—In the *Peninsular and Independent* for February, Dr. J. H. Beech has an article upon the above subject. At a meeting of the Buffalo Medical Association, several months ago, the possibility of chloroforming a person to insensibility during sleep was under discussion. It was the opinion of most of the members present that it was impossible thus to anæsthetize, without awaking the sleeper. Dr. Beech opposes this view, reports one case in illustration, and says he has succeeded in several other cases. He held a sponge as close to the nose and mouth as possible without touching, during inspiration, turned it aside when each expiration began." Complete anæsthesia was speedily induced. Dr. Beech says, "Persons sleeping will be sooner awakened by any article which resists the current of expiration, or turns it upon the face, than by offensive odors inhaled." The subject is one of interest, because of its medico-legal bearings.

Wounds of the Scalp.—In the *Southern Medical and Surgical Journal* for March, Prof. H. S. Campbell has a few remarks upon the dressing of wounds of the scalp. He proposes to avoid shaving the head, and also sutures. The plan which he advises, and has adopted, is that of "tying the strands of hair across the line of the wound, using them in the manner of sutures to effect approximation and retention of the edges." If the knot is disposed to slip, he says, "little clamps of split shot may be applied upon the strands of hair from the opposite sides." It appears to us that this plan is not new; yet Prof. Campbell says, he has "seen no record of it in recent works on surgery."

Tonic for Dyspepsia.—The *Louisville Medical News* for February gives the following for dyspeptic cases:

" R.—Tinct., cinchon.

" quassiae, aa. f. ʒij.

" nux vomicæ, f. ʒj. M.

A tea-spoonful three times a day in a wine-glassful of sweetened water. This is one of the best combinations of its kind; it is much prescribed by Dr. E. Wilson."

Belladonna as an Antigallactic.—In the *Medical and Surgical Reporter* for March 10th, Dr. John Flynn has an article upon the above subject. He says he has put the remedy to a rigid test, and entirely without benefit. In six cases, the most favorable for insuring a fair trial, he has "found it utterly worse than useless." This seems a little strange to us, for there is no remedy in any disease that has given us such gratifying results. We have previously given our experience in former numbers of our *Summary*. As our experience with this article is constantly accumulating, we still add such as has occurred to us since writing our last *Summary*. About two weeks since, we attended a primipara having a contracted pelvis. We attempted to deliver with forceps, but failing in this, we were compelled to resort to craniotomy. The following day we commenced the use of fluid extract of belladonna, locally applied to the breasts. The patient made a good recovery; no breast-pump was used, no nursing performed, and yet the breasts did not inflame. About ten days since we attended another primipara, in which the labor was easy and soon over, yet the child was still-born. On the following day we directed the fluid extract of belladonna to be applied to the breasts twice, daily, and oftener should symptoms of inflammation supervene. For a few days there was a small secretion of milk, which was drawn, but now the breasts are flaccid, having shown no evidences of inflammation. Every physician knows that it is in just such cases as these that mammary abscesses occur.

Since we commenced using the belladonna, perhaps three years since, we have not seen a case of mammary abscess, except in cases where mammary inflammation had been permitted to progress to near or quite the stage of suppuration, before we were called upon to advise in the cases. We certainly regard the belladonna as one of the greatest boons intrusted to us for the relief of that unfortunate class of females, who, after undergoing the pains of maternity, are compelled from any cause to forego the pleasures of nursing. It is proper to observe, that in the cases just referred to, we administered at the time

the iodide of potassium, internally. How much effect the latter remedy may have had in securing the desired result, we do not know; certain are we that the combination of influences is apparently all that heart could wish in such cases. The preparation of belladonna used was Tilden & Co.'s fluid extract.

Extra Uterine Pregnancy.—In the *Chicago Medical Journal* for March, Dr. C. Goodbrake reports a very interesting case of extra uterine pregnancy. The patient had previously borne nine children. In the spring of 1856, she supposed herself pregnant for the tenth time. At the fifth month, foetal movements were quite distinct. In December of the same year, pains occurring, her physician was summoned, and though pains continued for several hours, no child was born. Three weeks later, the physician was again called, with result as before. She continued to carry the child until the fall of 1859. Many physicians were consulted, and many opinions given, but no relief or quietude of mind obtained. On the 24th of October last, Dr. Goodbrake performed gastrotomy. The child was found enveloped in a sac of its own. "The sac was found firmly adherent in the right iliac fossa, and to a considerable extent, to the parietal peritoneum on the right side. There were no adhesions anteriorly, nor to the intestines, which were all crowded to the left side." The child was of the female sex, of medium size, as at full period, and presented no evidences of decomposition. It was removed, but the patient died, on the fifth day after the operation.

Variola and Vaccina.—In the *Boston Med. and Surg. Journal*, for March 15th, Dr. Ephraim Cutter has an interesting article upon the above subjects. It has been the prevailing opinion of the profession, that the vaccine disease was small-pox, modified and mitigated by its transmission through the cow. The experiments of Dr. Cutter seem to negative this opinion. He and his associate in experiment, Dr. Alonzo Chapin, have repeatedly *inoculated* the cow with variolous poison, by various methods, and entirely without effect. They have *vaccinated* the cow with the effect of developing the characteristic pustule. Dr. Cutter concludes, that cow-pox is *not* modified small-pox, but that they are distinct diseases. If the Dr's opinions should prove to be correct, we hope we shall hear no more about the gradual decade of the protective power of the vaccine disease, because of its successive transmissions through the human system.

Dr. Cutter does not claim originality in these views, for he says, "Dr. Von Bibra distinctly says, that the cow-pox and the small-pox are two different diseases."

Podophyllin and Leptandrin.—In the *Cleveland Medical Gazette* for March, Prof. J. P. Kirtland has an article upon the properties and uses of the above-mentioned agents. He believes that mercurials are quite too frequently and indiscriminately used, and that a combination of podophyllin and leptandrin may often be substituted for that agent with benefit.

Though the Professor's article will give aid and comfort to that class of quacks who glory in the cognomen of *eclectic*, yet his experience is none the less worthy of regard. His reputation for accuracy of observation will entitle his statement to confidence and respect. The indications for the use of the compound under consideration are the same as for the mercurials. Dr. Kirtland says, "My usual prescription for a laxative and aperient, as an equivalent for one or two grains of calomel, or five grains of blue mass, is the following:

R.—Podophyllin,
Leptandrin, ää , x grs.

Mix thoroughly, and divide into XL powders. Dose, one powder at bedtime; repeat, as occasion may require. Ale, coffee, or Catawba wine forms a convenient and palatable vehicle.

Uterine Hæmorrhage.—In the *Cleveland Medical Gazette* for March, Dr. Barth. Weber, of Cincinnati, has an article upon a new and sure method of arresting uterine hæmorrhage. The method consists in *compressing the arteria aorta descendens*. "In order to perform this small operation, the patient is to be placed on the back, the pelvis somewhat raised, and the thighs drawn up towards the abdomen, so that the abdominal wall gets relaxed; then you search with stretched hand for the fundus uteri, which, generally, you will find near the navel; push forward with the fore and middle finger, immediately above the fundus uteri, in a perpendicular direction, and at the same time try to push the intestines upward, which, generally, is easily accomplished. In this manner, you reach the spinal column, and feel plainly the pulsation of the abdominal artery. Now, you press with fore and middle finger perpendicularly, upon the artery, the hand forming almost a right angle with the spinal column." In this way, Dr. Weber says the artery can be compressed at pleasure. "This compression is to be continued as long as there is any danger to life from hæmorrhage, often for hours."

Prolapsus of the Funis.—In the *Louisville Medical Journal*, for March, Dr. S. Branders has an article on the treatment of prolapsus of the funis. He reports *three* cases successfully treated by position. He places the patient upon her breast and knees, introduces his hand

into the vagina or uterus, returns the cord, and retains his hand in position until the head is ready to occupy the entire pelvic strait. He ascribes success mainly to the position. Dr. Branders ascribes the original suggestion to Dr. Thomas, of New York. We are aware that Dr. T. G. Thomas read a paper upon this subject before the New York Academy of Medicine, very early in the year 1858. We also know that Prof. Mendenhall, of Cincinnati, has practiced replacement of the funis by position, for some time past; and that he has published two articles in the *Lancet and Observer* upon this subject, with illustrative cases. After the cord is replaced, so long as the patient will keep the position, it is entirely unnecessary to retain the hand in the vagina. The position should be kept until the head takes the position which will prevent the descent of the cord, when the woman should be placed upon the side or back during the balance of the labor.

Injuries of the Skull.—In the *Louisville Medical Journal* for March, Prof. Middleton Goldsmith has an article upon the *treatment of injuries of the skull*, in which he proposes a substitute for the *trepphine*. It is an objectionable feature of the *trepphine* that so much sound bone is necessarily sacrificed. To obviate this objection, Prof. Goldsmith has, for the last ten years, used the "*chisel in place of the former instrument.*" He says, "With a *chisel*, impelled by the hand, or small hammer, just so much bone may be removed as is necessary for the insertion of the elevator, or for the extraction of the detached pieces, and no more. The *dura mater* is not endangered in the operation, for the depressed bone protects it. It is never necessary to cut any part of the internal table, for if the opening in the external table is as large as the fracture of the internal table, then the external opening is large enough to allow the required extraction." To our mind, the *chisel* or *gouge* seems to possess such manifest advantages, that the only wonder is, that it had not long since suggested itself, and ere this, entirely superseded the *trepphine*. Economy in the loss of skull bone is not a matter of trifling consideration.

Dr. Goldsmith says further, "In the next place, the writer has uniformly practiced the *immediate and perfect closure* of the wound in the scalp." He believes "that the safety of the patient is vested more in the exclusion of the atmosphere from contact with the *dura mater* than in any other thing, and in any other circumstance in the whole operation of *trepphining*." . . . "Where there is no scalp wound, or when the latter is small, then the surgeon should make a *semicircular flap*, large enough to embrace the breach of bone, and to extend from one-

half to three-quarters of an inch beyond it." "The incision should have no angles over the breach of the bone."

Dr. Goldsmith says he has operated for fracture of the skull, as above, more than twenty times during the last ten years, without losing a single case, and his colleague, Prof. Hardin, has operated seven or eight times also, without losing a case. This is certainly unprecedented success, and is, doubtless, in some measure related, as an effect, to the manner of operating and dressing the wound.

Swallowing Teeth.—In the *Dental Cosmos* for March, (an excellent dental journal, by the way,) Dr. Foster reports a remarkable accident of swallowing teeth. He says, "A gentleman of this city, (Wilmington,) thirty-five years of age, sanguine temperament, swallowed his artificial teeth at midnight on Wednesday. Physicians were called in, who fished for them, also tried the usual remedies, but all to no purpose; it was then concluded to let Nature take her course, (not doubting in the least that *her* course would be *death* to him,) when, to the astonishment of all, and his most unbounded delight, after a very painful and laborious stool, he found himself again in the possession of them. This did not take place until the following Monday, making the *round trip* in five days." The plate was quite heavy, to which three teeth were attached.

Pneumonia, &c.—In the first three numbers of the third volume of the *Medical Journal of North Carolina*, Dr. W. T. Howard has a very lengthy and able review of Dr. O. F. Manson's essay on *malarial pneumonia*. We do not propose to enter the controversy, nor to give a synopsis of Dr. Howard's paper, which would well pay the perusal. We shall give only a brief notice of the treatment proposed. In malarial pneumonia, Dr. Howard favors the early and liberal use of quinine, and he enters with some minuteness into the literature of the treatment. He has, however, dealt more with early than with recent authors. Our readers are familiar with the fact, that we have, for some time, recommended quinine in pneumonia of an adynamic type, even though non-malarial. Our first article upon this subject was published in the *Lancet and Observer*, for October, 1858. In a former No. of our *Summary*, we have alluded to Dr. S. A. Cartwright's claim of first recommending quinine in large doses in pneumonia. He dates his claim as far back as 1826. Dr. Howard denies the claim of Dr. Cartwright, and avers that the quinine treatment was practiced, in some instances, both at home and abroad, anterior to that time. It matters but little, practically, who originated the treatment proposed; it should be universally known that, in *malarial pneumonia*,

quinine should constitute the principal treatment. Because of our ignorance and limited reading, we once supposed we were the first to advise quinine in the first stage of some forms of pneumonia, even when unconnected with a malarious influence. We have since learned that what was new to us was not so to some others. We believe that quinine is too generally regarded as exclusively a tonic. We have often expressed the opinion, that under some circumstances, it was a powerful *sedative*. It is to urge this opinion that we write the present article. Dr. Howard copies the opinions of Dr. G. A. Wilson, of North Carolina, upon this point, and they correspond so exactly with our own, that we quote them here: "*As early as the year 1838, I had to unlearn all that had been taught me of this agent as a stimulant and tonic, and of the dangers attending its administration in inflammatory states of the system. I have often noticed its effects in that class of cases complicated by cerebral determinations, and can safely say I have never known injurious consequences to follow. If stimulant at all, it has not acted in my hands as stimulants are wont to do. In many cases of high nervous excitability, it has had soothing and sedative effects.*"

Valerinate of Strychnia.—In the *Medical Journal of North Carolina*, for March, Dr. R. Wyson has an article upon the above compound.

The following is his formula of preparation:

" R.—Sulph. strych.,	gr. viij.
Valerian. acid.,	ʒj. M."

He says: "I have been using the val. strych. some ten months, and find that it is more particularly adapted to those cases where there is general debility, accompanied with nervous excitability, loss of appetite, indigestion, constipation, depression of spirits, and all the symptoms following, more or less, on the want of tone in the nervous system."

Treatment of Gonorrhœa.—In the *Med and Surg. Reporter* for March 24th, Dr. A. H. Stephens has an article on the treatment of gonorrhœa with the extract of *conium maculatum*. He reports prompt and happy effects from this agent—the cure being complete in from three to eight days. He gives the extract in twelve-grain doses every two hours. If giddiness is produced, the dose is diminished.

Ovariectomy.—In the *Boston Medical and Surgical Journal* for March 29th, Dr. A. B. Crosby reports a successful case of ovariectomy. The patient was 36 years of age, married, the mother of two children. The tumor was first observed about five and a half years previously. Paracentesis had been several times performed, and fluid

to the amount of 475 pounds had been drawn off. The operation was performed on the 28th of last August. The tumor and its contents weighed 28 pounds. Five weeks after the operation, the patient was able to dress herself, and direct her household affairs. There is no operation in which we take more interest than in ovariectomy. Several successful cases have been reported during the last year. Have the unsuccessful cases been suppressed?

Diphtheria.—In the *Lancet and Observer* for March, Dr. Isaac Meranda has a few remarks upon diphtheria. Dr. Meranda says: "A favorite remedy with us, and one which we consider admissible in every stage of the disease, is chlorate of potassa, combined with hydrochloric acid:

"R.—Chlorat. potas. pulvis,	3ij.
Hydrochloric acid.,	f. 3j.
Aquæ,	f. 3viij. M."

. . . "Of this, half an ounce may be given every two or three hours, according to the urgency of the symptoms." This is not an original prescription; it was, so far as we know, first proposed and highly extolled by Mr. Lambden, of Coningsby, in the *London Lancet*, for November 20th, 1858.

In a plethoric patient, Dr. Meranda prescribes, at first, calomel and jalap, in full purgative doses. In more feeble patients, he gives "calomel in alterative doses, conjoined with opium and ipecacuanha, or with camphorated Dover's powders." . . . "In some chronic cases, I have seen the happiest effects follow a moderate salivation."

We do not believe in the utility or propriety of this liberal administration of calomel in a disease so characterized by early prostration. Of all the local applications for the throat, internally, he says: "We have found nothing equal to the nitrate of silver. We prefer the solid stick, when we can reach the affected part; when we cannot do this, we apply a strong solution by means of the probang."

In the last four weeks we have seen a few cases of diphtheria, of no mild type. We may report our experience hereafter.

REVIEWS AND BIBLIOGRAPHY.

A Practical Treatise on Fractures and Dislocations. By FRANK HASTINGS HAMILTON, M.D., Professor of Surgery in the University of Buffalo; Surgeon to the Buffalo Hospital of the Sisters of Charity; Consulting Surgeon to the Buffalo General Hospital, and to the Buffalo City Dispensary. Illustrated with two hundred and eighty-nine Wood-Cuts. Philadelphia: Blanchard & Lea. 1860. Pp. 757.

The profession throughout the country, especially those engaged at all in surgery, or where their situation involves the necessity of taking charge of every accident requiring the aid of a physician, have anxiously awaited the appearance of Dr. Hamilton's great work on fractures and dislocations. It is truly a great work; both from the amount of labor, of which it is the result, and from its immense importance to a certain portion of the profession. In his preface, the author states the condition of English literature upon the subject of his volume, showing that here a great deficiency has long existed. "The English language does not, at this moment, contain a single complete treatise on fractures and dislocations. The two small volumes of Desault, the one of Boyer, issued near the close of the last century, and translated into English early in this, may perhaps, properly enough, have been regarded as complete treatises at the time of their publication, but they certainly cannot be so now considered. The several chapters on "*Diseases and Injuries of the Bones*," contained in the *Leçons Orales* of Dupuytren, translated in 1846, and the *Treatise on Fractures in the vicinity of Joints, and on Certain Forms of Accidental and Congenital Dislocations*, by Robert Smith, are invaluable monographs, but neither of them claim to be anything more than a collection of occasional and miscellaneous papers. The writings of Amesbury, and of Lonsdale, relate only to fractures. Even the justly celebrated quarto of Sir Astley Cooper is no more than what its title plainly declares it to be, *A Treatise on Dislocations and on Fractures of the Joints*; but since the announcement of the present volume, a translation of Malgaigne's great and crowning work on Fractures and Dislocations has been commenced by Dr. Packard, of Philadelphia, and the first volume has been placed in the hands of the American profession. Should the remaining volume be rendered into English, the gap in our literature will be measurably filled."

The reader will see that the present volume has filled a void in a most important department of our science. Such a want has long

been felt by all, and keenly felt by those whose practice in cases of fracture or dislocation has not been quite satisfactory to their patients. Those of the latter class have been mulcted, some justly, and some unjustly, without the benefit of any work in the English language as received authority on the subject. We do not intend, in making these remarks, to disparage the admirable text-books on surgery which have been issued from the American press, the works of American and English authors. It would, of course, be impossible that even a subject so important as that to which the present work is devoted, should be completely exhausted in a systematic work upon surgery; we wished to show the value and importance of a complete work on fractures and dislocations, before commenting upon the treatise before us.

It is the pride of American practitioners and surgeons to say, that in the practical application of their science, and art of medicine and surgery, they rank second to those of no other country. We can certainly claim equality, if not superiority, in this regard; and we think we will be sustained in the assertion, that in the treatment of fractures, our best surgeons stand pre-eminent. In this country, Prof. Hamilton has most identified his name with this subject, and is best qualified to write a work upon it, vindicating his claim and the claims of his countrymen to a high position in this department of surgery.

As this journal is not the medium of elaborate reviews, especially of systematic treatises, we cannot give more than a mere sketch of the plan and scope of the work before us.

Part I., more than two-thirds of the volume, is devoted to the consideration of fractures, embracing thirty-five chapters; six of which treat respectively of "general division of fractures," "general etiology of fractures," "general semieology of fractures," "repairs of broken bones," "general treatment of fractures," "delayed union and non-union of broken bones." The remaining chapters treat of special accidents; in which, while all are considered, the appropriate prominence is given to those which are most commonly met with, and most important as regards diagnosis and treatment.

The chapters on fracture of the long bones, especially those of the lower extremities, are exceedingly minute and elaborate. The author's great experience in these accidents, and the minute study which he has given to the results under different surgeons, and with varied forms of apparatus, render these the most valuable portions of the work. Already has the profession reaped much benefit from Dr. Hamilton's labors in this direction; and the elaborate reports made by him to the

American Medical Association opened an interesting and comparatively new field of investigation.

Part II. embraces twenty-six chapters, treating of all forms of dislocations. In studying this section of the work, the reader will be struck with the great improvement which has taken place in this department of surgery of late years. Dexterous surgeons are now much more successful in their manipulations; and luxations which in old times inevitably brought into play the inquisitorial pulleys or adjusters, are now frequently reduced without pain, by simple manipulation. The so-called Reid's method of reduction of dislocation of the femur by manipulation is fully discussed, showing that these dislocations had occasionally been reduced without forcible extension, even as far back as the time of Hippocrates. Prof. Hamilton prepared a very elaborate paper on the literature of reduction of the os femoris by manipulation, for the *Buffalo Medical Journal*, appearing in the numbers for February and June, 1858.

Without going into an elaborate review, it would be profitless to discuss, at length, the numerous original and important contributions of the author to the subject of fractures and dislocations. Most of these are, or should be, sufficiently familiar to the profession, as Prof. Hamilton has long been known as an indefatigable investigator into all points connected with this subject. Still, a systematic treatise is quite different from the report of a detached observation; and one well known as an able investigator might fail in presenting an entire subject in the form of an authoritative work. In the work so long looked for by the profession, they cannot be disappointed; and the author has raised for himself, and for American surgery, an enduring monument. A few more such works, and a few more such workers, and America would contribute far more than her share towards the progress of our science.

Proceedings of the American Pharmaceutical Association, at the Eighth Annual Meeting, Boston, Mass., September, 1859. Boston: Geo. C. Rand & Avery. 1859. Pp. 416.

The proceedings of this active, energetic body have been on our table for some time, and should have received notice before this, but other books and other subjects have required our attention, so that the volume containing them has been laid aside until the present. After several days spent in deliberating over topics of interest to Pharmacy, while enjoying the hospitality of their Boston brethren,

the American Pharmacæutists adjourned, to meet in New York Sept. 11, 1860. Their Proceedings, as contained in the volume before us, are specially valuable on account of the Reports of Committees being given in full, so as to show how active and business-like are the operations of the Association. A glance at the nature of some of these reports will show what the Association is furnishing at its annual meetings.

The *Report on Progress of Pharmacy* is a well-prepared abstract of all the discoveries and improvements in Pharmacy, published during the year ending with the period of the meeting. To those who have not ready access to many journals, (and what physician or apothecary has?) this report gives a bird's-eye view of all that is interesting or attractive, collected in such a condensed form that but little time is required to master it in full. On account of this abstract alone the volume is worth the price charged for it. But while this report is of practical use, we cannot say quite so much for that of the Committee on Weights and Measures. Much learning and laborious research have been employed in its preparation, but it seems to us as much out of place in this volume, as a treatise on *Quaternions* would be in the midst of an ordinary school Arithmetic. True it is, that there should be *international* uniformity, and that a national congress called for this purpose would pave the way for such a result, but we cannot even dream of the entire destruction of decimal arithmetic, of the abolition of the present system of arithmetical computation by tens. The author of this report, however, sets forth the objections to this system in computation, as fourths, eighths, &c., can only be obtained by the aid of fractions. He considers that an octonary series would obviate all this, and make our arithmetical labors more simple and intelligible. On an octonary basis, he would construct all our tables of weights and measures. This would require *new* phraseology, a specimen of which is as follows:

Un.	Du.	The.	Fo.	Pa.	Se.	Kl.	Unty.
1	2	3	4	5	6	7	8

The octades are named by the euphonious titles,

Duty.	Thety.	Foty.	Paty.	Sety.	Kity.	Under.
16	24	32	40	48	56	64

We doubt very much whether all the advantages of such a system would induce the world to commence learning new Numeration and Multiplication tables.

The *Report on the Revision of the Pharmacopœia* contains the suggestions of such practical men as Parrish, Grahame, and Carney, as to

the necessary changes which should be made by the decennial convention. *The Report on Home Adulterations* satisfies us of the increasing insensibility to truth and honor, in the case of some dealers in drugs and in articles required for table consumption. When shall the public be protected from rascality by proper legislation?

There are also a number of valuable *special* reports, made by members of the association, which are generally *real* contributions to knowledge. That on *Silphium laciniatum*, *rosin weed*, seems wonderfully *out of place* among the other reports. The object is to show the character of the silphium, and to answer the questions, "Can it be substituted for mastic? To what extent may it be collected as an article of commerce?" The author seems to have obtained about an ounce. He pronounces it preferable in taste to mastic; but speaks of its properties in allaying irritation of the lungs and checking coughing, not from having tried it, but from having tried mastic. To confirm his own "reasoning from analogy," he quotes the case of a young lady "who was troubled with very weak lungs, so much, in fact, that the difficulty was a source of anxiety to her friends, and she herself was fearful that she would be compelled to relinquish her employment as a teacher; for often, at the close of a day, she was scarcely able to articulate above a whisper." Fortunately, she lived "where the rosin weed was plentiful," and she "*got to chewing the gum*." She eventually became perfectly cured, and has to-day as strong and healthy a pair of lungs as could be desired." After this *scientific* statement, who can doubt the value of rosin weed? Who will hesitate to believe, that "were the virtue of this unpretending weed generally known, many valuable lives might be saved that now yield to the insidious and persevering *demolitions* of that destroyer, consumption?" "*Werry true, Sammy*," as old Mr. Weller would say. We were about quoting some sentences from the same report, describing a fire on the prairie, consuming the rosin weed, but—we forbear. If our friend of the *Knickerbocker* wants something graphic on this subject, we refer him to the report itself.

s.

A Medico-Legal Treatise on Malpractice and Medical Evidence; comprising the Elements of Medical Jurisprudence. By JOHN J. ELWELL, M.D., Member of the Cleveland Bar. New York: John S. Voorhies. Cleveland, O.: Alfred Elwell & Co. 1860.

Some systematic treatise, properly exhibiting and discussing the rights and liabilities of physicians and surgeons, growing out of the

practice of their profession, as well as the important subject of medical evidence, would meet a generally acknowledged want. The author of this work, by reason of his double experience in the professions of law and medicine, is presumed to be peculiarly qualified to supply this want; and having given to the subject, as he says, much labor and long thought, he leaves it to his readers to say how far he has succeeded in his effort.

After speaking of the general principles of law applicable to medical men, and the difficulties inherent in the practice of medicine and surgery, he discusses the subject of malpractice in cases particularly of a surgical character, such as amputations, fractures, dislocations, incised wounds, &c., &c., giving a digest of Prof. Hamilton's reports of cases of deformity after fracture, together with a series of adjudicated cases upon these several points.

The legal responsibilities of druggists in the exercise of their vocation, together with leading cases bearing on these questions, are also set forth.

The subject of malpractice in its criminal aspect is next discussed, and to this several chapters are devoted, embracing detailed cases and decisions of courts, both American and English. A chapter on abortion and feticide closes the first division of the work.

The second treats especially of medical evidence, in which the importance of the subject, its history, and the rights and responsibilities of medical witnesses, are duly dwelt on, and some judicious and practical hints given to medical men, both in regard to preparation for, and manner of, testifying.

The vexed subject of medical evidence in cases of insanity occupies several chapters, and the difficulties that surround it acknowledged to be prominent and troublesome.

Chapters upon medical evidence in cases of poisoning, infanticide, wounds producing death, rape, and one upon the office and duties of coroners, conclude the volume.

We are constrained to say, in regard to this work, so desirable in kind and praiseworthy in design, that we are disappointed in its execution. So far as concerns the collection and embodiment in one volume of many adjudicated cases, scattered through the books, it may be of value to the profession; but as to elucidating the principles involved in them, or as to setting in a newer or clearer light the many medico-legal questions still undecided, we think they will derive from it but little assistance.

There is a want of thoroughness in the examination, and a lack of

appreciation of the nature of the subjects discussed in several portions of the work, that one regrets to notice. Particularly is this the case in that portion treating of the subject of insanity, the great defects of which (and the same may be said of other portions) are those which arise from a limited acquaintance with the literature of the subject; a strange misconception as to who are the recognized medical writers and authorities in this department, and from leaving many points undecided, and poised, as it were, between opposing opinions, without the benefit even of the author's own views upon the case.

It might not be equal to the expectations of the author to have his work termed a valuable book of medico-legal quotations, and yet, in fact, it amounts to but little more.

L.

Diseases of the Ear. By J. TOYNBEE, F.R.S. Republished by Blanchard & Lea. Philadelphia: 1860.

We have carefully read this book through. It has the merit of being founded on the large experience furnished by dissections of over 2,000 cases. The disorders of this complicated and exquisitely delicate organ the author has judiciously grouped into anatomical divisions: diseases of the meatus and its canal; of the tympanum and its cavity; of the ossicula and labyrinth; caries and necrosis of the mastoid cells, and adjacent bone, reaching into the skull.

Injections are a favorite remedy of the author, and pervade throughout the work every variety of cases. At page 108, it is remarked: "Here, perhaps, I may be excused a few words on the subject so frequently adverted to, as the danger of stopping a discharge of the ear. * * * * Where strong injections have been employed, the symptoms that follow are not dependent upon the cessation of the discharge, but upon the inflammation caused by the irritant." Doubtless the injection can excite the existing chronic into acute inflammation; but, even if no inflammation be produced, the cessation of the discharge is too often merely the cessation of its *exit*, not of its formation; this goes on, though none escapes, as a *discharge*, pressing in all directions in search of an outlet, until it works through the thin leaf of bone that separates the seat of disorder from the cavity of the skull; *now* producing inflammation of the brain, almost always followed in a few days by death. Four such cases we have seen in adults, a few days previously in good health; the injection causing swelling and closure of the orifice that gave passage to the matter behind, arresting the discharge,

but not its secretion. We must, in justice to the author, say, that in Chapter XII. he cautions against the indiscriminate use of *irritating* injections, lest they confine the pus, and cites many interesting cases wherein the roof of the tympanum and mastoid cells became pierced, the brain affected, speedily followed by death. We have thought proper to make the foregoing remarks, having too often noticed the *matter-of-course* prescription of injections by general practitioners, who have not made diseases of the ear a study—know little about the ear; and to those we strongly recommend this work, as filling up a vacuum that is left void in systems of surgery.

The typography and general getting up of the book deserve all praise; but we much regret that the wood-cuts, while accurate as to drawing, are completely spoiled by the deep shading; so much so, in most of them, as to defy the eye to make out what they are designed to illustrate.

Introductory Lectures and Addresses on Medical Subjects; delivered chiefly before the Medical Classes of the University of Pennsylvania.

By GEORGE B. WOOD, M.D., LL.D., President of the American Philosophical Society; President of the College of Physicians of Philadelphia; Professor of the Theory and Practice of Medicine, and of Clinical Medicine, in the University of Pennsylvania, &c. 8vo, pp. 460. J. B. Lippincott & Co., Philadelphia.

But few men in America have done more to advance medical science, and to endear themselves to the profession, than has George B. Wood, of Philadelphia. For many long years he has been a laborious practitioner, a lecturer and teacher of medicine, and yet his pen has been by no means idle. To attend to all the duties of a laborious practice, to keep one's self thoroughly posted in the literature of his profession, and to lecture daily, for four months in the year, to large classes, require no small demand upon one's physical and mental energies. When, in addition to all this labor, a man writes many large volumes, of unusual merit, we must ascribe to him superior industry and talent. The United States Dispensatory, Wood's Practice of Medicine, and his Therapeutics and Pharmacology, are, perhaps, the best works of their kind in the English language.

The volume before us, and for which we are indebted to the publishers, consists of nineteen lectures or addresses, upon various subjects connected with medicine, and were chiefly introductory to yearly courses of lectures, delivered in the University of Pennsylvania.

To the many students of this time-honored University, the volume

will be particularly interesting as a remembrancer of former years, when hope was big with honors and emoluments in anticipation.

Though the volume before us may add but little to our store of practical knowledge required by our every-day duties, yet it is none the less interesting, or less deserving of being read. It is full of good cheer, strengthening our resolutions of faithfulness, and encouraging us on to higher and nobler efforts. It is thus dedicated: "To the medical graduates of the University of Pennsylvania, from the spring of 1836 to that of 1860, inclusive, before whom were delivered, and in whose behalf were prepared, most of the following discourses, this volume is inscribed, as a memorial of the many agreeable, and, may I not say, profitable hours, they and I have spent together, and of the affectionate interest with which I continue, and, so long as life may last, shall ever continue to regard them.—George B. Wood."

The volume is well printed, on beautiful paper, and neatly bound in muslin.

O. C. G.

On Criminal Abortions in America. By HORATIO R. STORER, M.D., &c. Philadelphia: J. B. Lippincott & Co. 1860.

This volume is a collection of the essays under the head of "Contributions to Obstetric Jurisprudence," published in the successive issues of the *North American Medico-Chirurgical Review*, for 1859. Our views of the merits of these papers have been previously expressed. In our *Summary* in the September No. of the MONTHLY, we made reference to them, and endeavored to impress the reader with an idea of their importance. Our over-crowded pages will not permit an analysis of the work, and we must again content ourselves by referring our readers to these contributions of Dr. Storer. The subject of Criminal Abortion is intimately connected with not only the health, but the morals of the community, and cannot be too attentively studied in the light in which Dr. Storer has considered it.

O. C. G.

Braithwaite's Retrospect of Practical Medicine and Surgery. Part the Fortieth. New York: W. A. Townsend & Co.

This reprint, for January, was timely placed upon our table by the publishers. Its *three hundred and sixty pages* are filled with choicest selections from trans-Atlantic Journals. In addition to three or four American journals, every physician who intends to keep himself thoroughly informed in his profession, will take at least one of the reprints of foreign journals.

Ranking's Half-Yearly Abstract of the Medical Sciences, Part the Thirtieth, is also before us, through the kindness of the American publishers, Lindsay & Blakiston, Philadelphia.

Our readers will bear in mind, that for *four dollars*, sent to the office of the MONTHLY, either of the above reprints, with the MONTHLY, will be sent one year; making decidedly the cheapest, and yet the best, medical reading to be had in the country—*seventeen hundred* pages for four dollars.

O. C. G.

The British and Foreign Medico-Chirurgical Review, for January, is before us, through the politeness of the American publishers, S. S. & Wm. Wood.

This quarterly journal of British and Foreign Medical literature is indispensable to the buyer of foreign books. Its reviews are distinguished for ability and candor, and the reader is made acquainted with the views of all the more distinguished foreign authors. Its original department always contains able papers, and its *reports* upon the various branches of medical science are generally well made up. o. c. g.

PROCEEDINGS OF SOCIETIES.

New York Medico-Chirurgical College. Regular Meeting, February 8, 1860. DR. JOSEPH WOOSTER, Chairman.

DR. CARNOCHAN presented for examination a patient who had been under his treatment for some time, for *morbus coxarius*, which he said would illustrate in some degree the remarks he had made on this subject at the last meeting.

While the patient was being examined, Dr. Carnochan gave the history of the case, as follows:

This child has passed through all the stages of the disease, and yet the joint is in a pretty good condition, if not entirely well. About three years ago an issue was inserted in the vicinity of the joint, and a mild, general course of treatment adopted. By this treatment, the child was benefited considerably; but after a while, some six or eight months, it relapsed to its former condition, and the disease went on progressing, until finally, the second stage of the disease was reached. At this time, there was an abscess in the neighborhood of the joint,

which was punctured with the trochar, and about two tea-cups full of matter allowed to escape.

The child was then placed on the syrup of the iodide of iron, together with the application of the perchloride of iron upon the outside of the joint. After this, the child was taken into the country, it being able to move about on crutches, and it was not long after this before the flow of matter entirely subsided, and the child has now recovered to such an extent, that it is able to walk quite well on the affected side.

It was just such a case as this that I had in my mind when I objected to the universal exsection of the head of the femur in the latter stages of this disease, still not denying that the operation performed at the proper time might be followed by good results.

In fact, I have seen cases in the second stage, where, by using such mild therapeutic measures as the internal use of the iodide of iron, and the external application of the perchloride of iron, at the same time allowing the patients to take exercise on their crutches, they get well with a very good motion of the joint.

DR. SAYRE remarked, that in this case there was no motion whatever in the hip-joint; but what little motion the child had, was confined entirely to the pelvis. We often deceive ourselves in regard to this point, and attribute the motion to the hip-joint. If the members will watch that child closely as it walks across the room, I think they will admit that the motion in this case is confined entirely to the pelvis. It will also be seen that the flexor muscles of the thigh, the tensor vaginæ femoris, the pectineus, the sartorius, are still strongly flexed, although the disease is nearly terminated. I think, then, the case would be very much benefited by the division of the flexor muscles, as it would give the patient the chance, at least, of the formation of a false joint, giving more motion than we now have.

The remarkable power of nature to form false joints, giving excellent motion to the limb, is beautifully illustrated in this specimen, the head of the humerus—which was exhibited to the College. The specimen was removed from a gentleman who received a fracture at this part of the bone some time ago. There was much difficulty in making out the diagnosis, the gentlemen in attendance not believing that any fracture whatever was present; the case, therefore, went on until finally the man died, and the opinion I had expressed at the time of the accident, namely, fracture, was confirmed by a post-mortem examination. We find in this specimen, the fractured end of the bone

rounded off and tipped with cartilage, and the cavity in which it rested even lined with *synovial membrane*.

DR. CARNOCHAN remarked, that he did not suppose from this case, that the same thing would take place in the hip-joint in morbus coxarius. In the case referred to by Dr. Sayre, the joint was in a *healthy* condition; nature had a sound, healthy surface to work on. But in morbus coxarius, we have a morbid condition; the chances for the formation of a false joint are by no means the same in both cases. Still, if we dare run the risk of the child dying from the operation, and are willing to take the responsibility, it is all very well; I am inclined to think, however, that it is far better "to let well enough alone." If we know a case will get along well, we must not run the risk of an operation.

Now, with regard to incision of the muscles, I suppose that Dr. Sayre, of course, divides the muscles subcutaneously; and this is no trivial or easy operation. We have large nerves and vessels in their immediate vicinity, which we must be extremely careful not to wound. Where the muscle is in relief, and is hard and corded, it may, perhaps, be done; but in this case, where the muscles are but little flexed, it would be a somewhat difficult matter to direct the tenotome so as to divide nothing but the muscle.

DR. SAYRE then presented a specimen having the appearance of some two or three molar teeth, half formed, and fused together. They were discharged from the ear of a little girl who visited his office that afternoon. The history of the case was so curious and interesting, that he had requested her to remain, that the members might have an opportunity of examining her. The history is as follows:

Elizabeth —, aged 8 years, had the measles in Scotland when she was 5 years of age, which was followed by swelling in the neck and all of the right side of the face. The mouth was nearly closed by the swelling of the gums and roof of the upper jaw. The ear was raised upward, and pushed outward by an immense swelling in the region of the mastoid process of the temporal bone. An abscess formed, and was finally opened just below the ear. A large amount of pus escaped, and after about three months she had another febrile attack, followed by intense pain in the ear, which was relieved by a rupture of the tympanum, and the discharge of an immense quantity of pus from the ear. This offensive discharge kept up for about eighteen months, when a *rudimentary tooth* escaped through the *meatus auditorius externus*, which is now in the possession of Dr. Watson, of this city. About four weeks after this, the present specimen was dis-

charged. This specimen is about $1\frac{1}{4}$ inch long, a half inch wide, and about a half inch thick. It appears to consist of the three posterior molar teeth of the upper jaw. In two weeks after this another portion was discharged, which is about three-quarters of an inch long, half an inch wide, and one-quarter of an inch in thickness. This appears to consist of the two posterior molar teeth of the lower jaw. After the escape of these bodies, she was relieved of the pain in a very great measure, and is now perfectly well, but has no hearing on the affected side.

DR. NELSON remarked, that in examining this child at the present time, it was quite easy to see that all the milk teeth are still remaining; consequently the specimens here exhibited cannot belong to those primitive teeth. Whence, then, come these teeth? There is but one way by which we can account for this strange phenomenon, and that is, by supposing it to be the result of the process of involution. We see so many of these cases where there is a fœtus within a fœtus, or at least a small portion of a fœtus within another, that this manner of accounting for the appearance of these specimens is not rendered improbable. The portion involuted sometimes grows to a certain extent, or the development is arrested quite early. The individual in whom these portions are contained sometimes grows up to an advanced age, and then the portion involuted may be discharged by ulceration, or it may remain inclosed in a cyst and never produce any trouble.

DR. MEIER stated that formations of this kind were not unfrequently found in the interior of ovarian cysts.

DR. CLARK inquired if any one had seen these pieces come out.

The mother of the child, who was present, stated that she was the only one who was by when the pieces came from the ear. In the first instance, her attention was called to the child by its screaming from pain in the ear, directly after getting up. On looking into the ear, she observed a whitish substance, which she supposed was a bit of cotton which had been placed there the evening previous; on taking it out, however, it proved to be a tooth. The expulsion of the second specimen was attended by the same symptoms; so far as she could judge, these teeth seemed to come directly from the external auditory canal.

DR. SAYRE then presented a specimen of extensive *cystic degeneration of the kidneys*, with a written history:

DR. W. H——, aged 39, of large and robust frame, had slight hæmorrhage from the urethra about eleven years ago, accompanied with

intense pain in the region of the right kidney. The blood continued to pass in clots for several days, accompanied with great pain. He was leeches, and bled from the arm very freely, for three days in succession. Was confined to his bed about six weeks, and convalesced slowly in about six months, when he went to California for his health, had the Chagres fever, which prostrated him very much, and left him with a diarrhoea, which continued for nearly eighteen months, the passages, most of the time, being more or less mixed with blood.

For the past two years, he has been compelled to pass his water nearly every half hour, day and night; his wife says he never got up less than eight times in the night for this purpose, and more frequently ten or twelve. He never complained of pain, and only suffered from intense thirst; always drinking a tumbler of water every time he got up to pass his urine, and would drink several pitchers full in the course of the day. The only other symptom that was noticed was a constant and intolerable itching of the anus, which gave him great annoyance, ever since his first hæmorrhage, eleven years since.

Within the past year, he has complained of fatigue and weariness, desiring constantly to rest in a horizontal posture. He, however, continued at his profession—(that of a dentist)—but would frequently leave his patients to rest a few minutes on the sofa; and which he attributed to his growing so fat, and was surprised to find that his increase in size was confined entirely to his waist.

Whenever he used the furnace to bake his porcelain, for the past year, he has suffered from epistaxis, which continued for several days, generally a week. Within the last year he has had a great many boils on different parts of the body; his wife thinks more than a hundred, from which he suffered great pain.

On Monday, the 9th of January, (1860,) he complained of a pain in the region of the right kidney, for the first time in ten years. This continued to increase until the 14th, when it became very severe, and about 3 o'clock he laid down, and opened his pants, complaining of their tightness, and, pressing both hands on his loins, asked his wife to rub and *press* him there, when he suddenly jumped up, crying out, "There, something has given way—now it's coming," and immediately the blood started, and he passed nearly three quarts. I saw him a few hours afterwards in consultation with Dr. Senff, and found him bathed in a cold, clammy sweat; pulse 130, small, easily compressed, and feeble; complaining of pain and weight in the right kidney. He was under the influence of morphine, and did not evacuate his bladder for thirty-two hours, at which time he passed about one pint of

blood, dissolved in a small quantity of urine. Whether the check of secretion from the kidneys was due to the excessive loss of blood, or the use of morphine, I was unable to determine. He continued to pass bloody urine for three or four days, when it again became clear and transparent, of the same amount, unaltered with blood. On the 20th, he had a slight convulsion, which was followed by a copious hæmorrhage and increased pain in the right kidney. A large-sized catheter passed readily into the bladder, showing there was no obstruction in the urethra; but the bladder was very small and corrugated, giving a very roughened feel to the hand when describing a circle with the instrument.

A distinct tumor could be detected in the right side, commencing just above the ilium, and extending upward, in the region of the kidney. It had an elastic, fluctuating feel, like an intestine filled with air, but was not resonant upon percussion, and was therefore diagnosed, as being connected with the kidney. He died in a convulsion on the 30th January, 1860, and on a *post-mortem*, is found the following condition of the kidneys:

Right, weighed 4 lbs. $\frac{3}{4}$ oz.; length, $13\frac{1}{2}$ in.; breadth, 7 in.; thickness, 4 in. Left, weighed 3 lb. $\frac{1}{2}$; length, 11 in.; breadth, $5\frac{1}{2}$ in.; thickness, $3\frac{1}{4}$ in. Made up of cysts, varying in size from a large walnut to a small pea, and filled with different-looking fluid—from a transparent serum, amber-colored, quince juice, jelly-looking material, up to the purple and jetty black; the latter, however, consisting mostly of blood. All of the black and bloody cysts were on the right side; the left was apparently transparent serous cysts. Both had undergone to a considerable extent the fatty degeneration. The bladder was very small and hypertrophic in its muscular coat; mucous membrane slightly thickened, but no hæmorrhagic spots. All the other organs were properly healthy. The lungs were much compressed by the distention of the kidneys, but were healthy.

The brain was not examined.

DR. BRYANT remarked, that with the permission of the Society, he would read a letter which he had received from Dr. Jennings, Veterinary Surgeon, of Philadelphia, in answer to a request for his experience with regard to the *action of anæsthetics on horses*.

The letter gave the reports of twenty-one cases, in some of which chloroform was given, for the purpose of destroying life; but in most, to facilitate the removal of tumors and the performance of other operations.

The reporter stated that he had never known a case terminate fa-

tally, from the use of chloroform in the horse, unless it was so designed. Sulphuric ether he regarded as of no service whatever, as an anæsthetic in operations on the horse; chloric ether answers very well, but cannot be depended upon. He had had no experience as to its effects on dogs, having used it in one instance only, that of a water spaniel; but the dog died within three minutes after the first administration of the anæsthetic. He had been informed by a friend, who had experimented much upon dogs, that with these animals it was a dangerous agent, terminating almost always fatally.

DR. CARNOCHAN remarked, that the very rapid manner in which the horses died under the influence of chloroform, was somewhat remarkable. There are several cases mentioned, where the animals died in some sixteen or seventeen minutes. In the human subject, he had frequently seen patients kept under the influence of the anæsthetic as long as an hour without any injurious result following.

DR. BRYANT.—The rapid destruction of life in the cases referred to, must be attributed to the fact, that the agent was administered for the purpose of producing death, and therefore, no precaution was taken to admit the atmosphere; on the contrary, the admission of air was almost entirely prevented, so that in addition to the influence of the anæsthetic, the animal was subjected to suffocation.

DR. WOOSTER stated, that in one instance he had purposely destroyed the life of a horse in this manner, and it was only with the greatest difficulty that the animal could be brought under the influence of the anæsthetic. Some eight ounces of chloroform were used; the animal lying in a recumbent position. On raising up the head for a few minutes, death soon took place. He thought that the injurious results seen in the human subject might often be attributed to suddenly raising the patient to a semi-erect posture, thus depriving the brain of its arterial stimulus.

DR. BRONSON presented a *fetus*, which was the product of *extra-uterine gestation*, being delivered through a spontaneous opening in the abdominal walls, with the following history: On Wednesday, the 25th of January, I was summoned to see a patient, from whom I learned that she had conceived in April, 1859; that she had had peculiar sensations while carrying the child, but especially during the first part of December, about the 12th of which month, the child ceased to move, and since that time, she has been gradually failing. The peculiar sensations she spoke of were those of *crawling* from right to left; a sensation which is easily accounted for, as will be seen hereafter. Having heard this much of the history, I made a partial examination of

her case. I found the abdomen enlarged naturally, as from pregnancy, but to a limited extent; and in the course of the colon, the abdomen was enlarged, painful, and tympanitic. On pressing upon the parietes gently, but firmly, a mass was felt, simulating fecal accumulation, and such I supposed it to be, and in part, rightly so. The patient was then in a hectic condition, pale and emaciated. Pulse 156. The surface of the skin, as well as the respiratory mucous membrane, gave forth a very peculiar odor. The cervix uteri did not present that condition which is ordinarily found in pregnancy at this stage, which I attributed to the fact that the fœtus had been long dead. Such being the condition of the patient, I resolved upon the following course of treatment: To give quinine and morphine at intervals of three hours, together with brandy *ad libitum*, and the most nourishing diet. In addition to this, an enema was ordered night and morning, with the intention, as soon as her strength would permit, of exploring the uterus, and removing the source of her trouble. In the course of four days, her strength improved and the pulse became reduced to 128, but of little power. On the fourth and fifth days, I was enabled, by means of sponge tents, to examine the uterine interior, which I found empty. During the first four days, the injections brought away large quantities of compact fecal matter, after which, the tumefaction in the course of the colon was materially reduced. At a point, however, midway between the umbilicus and the borders of the ribs upon her left side, the pain and tenderness increased, and the skin in that region became heightened in color. Her strength did not maintain its apparent increase, but gradually failed. On the 6th of February, at a point three inches and a half above the umbilicus, and one inch and a half to the left of the median line, the parietes of the abdomen had become so far absorbed as to present a small aperture, through which fœtid and intestinal gases escaped. On the 9th of February, which is to-day, the aperture was found to be enlarged, simply by this process of absorption, to the diameter of one and a half inch, and through this opening, in the presence of, and assisted by, Dr. H. G. Davis and my pupil, Mr. Anderson, I removed a full-grown fœtus, the soft parts of which are, to a great extent, decomposed; the fibrous and osseous tissue are still very perfect, presenting, as is seen in the specimen, the form and appearance of a fœtus. The fœtus was lying with its feet in the right iliac fossa, and the head in the left, the postero-lateral portion of the thorax of the left side presenting at the opening. This position accounts for the crawling motion felt by the mother during the life of the fœtus. No placenta could be found, it having probably

passed away through an opening which, I should have stated before, was found in the colon, directly opposite the external opening. After the removal of the fœtus, the mother was put upon quinine and morphine, brandy, &c., and left to rest.

DR. BRYAN remarked, that he knew of two cases that were analogous to this in some respects. One of them occurred in the practice of Dr. Yardly, of Philadelphia. In this instance, the fœtus was removed, piece-meal, from the anus of the patient. It was supposed that it made its way from the posterior wall of the uterus, by ulceration into the rectum; the exact nature of the case, however, was not clearly ascertained.

The other case occurred in the practice of Dr. Bryan's brother, at Beverly, N. J. The patient was a fine, healthy woman, in every respect; she was taken in labor with the usual pains, when, very suddenly, the labor ceased; she recovered from the immediate effects of this shock. A tumor, however, still remained in the abdomen, and continued in this situation for some six months, until finally ulceration took place, and the fœtus was discharged per rectum.

EDITORIAL AND MISCELLANEOUS.

— With the present number of the MONTHLY we commence the publication of a series of lectures upon the *Physiology of the Circulation*, by the distinguished physiologist, Prof. JOHN C. DALTON. Four lectures have already appeared in the late *Buffalo Medical Journal*, the fifth appearing in the present number of the united journals. The former subscribers to the old Buffalo Journal will receive the lectures in regular course; and the subscribers of the MONTHLY, in order to place them upon an equal footing, will receive the four lectures in one extra number, as a supplement to, and paged consecutively with, the April number, so that it can be bound up with the Thirteenth volume.

The republication of these lectures has been attended by considerable expense, but this has been cheerfully assumed, believing, as we do, that we are making by this publication an important addition to the medical literature of the country, and giving to our readers a series of lectures which will prove in every way acceptable and instructive.

Of the lectures themselves it is not necessary for us to say a single word. The high reputation the author enjoys, his devotedness to

physiological pursuits, and the eminent rank he has already attained as a physiologist, is the best guarantee of their great value. The Extra April number, containing the first four lectures, comprising 84 pages, will be sent to *paying* subscribers *only*. Those, therefore, who have already paid, may expect to receive this number; and those who may hereafter oblige us by becoming paying subscribers, will also promptly receive this number upon the receipt of their arrearages.

It is seldom we refer to pecuniary matters in the pages of our journal. The opportunity is, however, so good, that we cannot refrain from requesting our delinquent subscribers to pay promptly, both as a compliment to us, and as a duty to us. We are striving to make the MONTHLY as practical, as instructive, and at the same time, as entertaining a journal, as can be found in the country; and we shall look to all those who have subscribed for the journal, for the material aid which, we think, they should unhesitatingly send us. If there are any who do not wish our journal, and do not intend to pay for it, such will please inform us, that we may be no longer at the expense of sending it to them. Those who, on the contrary, are pleased with our efforts, and who desire to see still greater improvements in our pages, will send us the small sum due us; and we promise that every cent shall be expended in making the MONTHLY the most valuable medical journal in the United States.

This number closes the Fifteenth Volume of the "Buffalo Medical Journal and N. Y. Review." With the June number, (which will be sent as an extra,) will be given the title-page and index; and with the succeeding, or July number, will commence the first number of the combined journal.

— Among the recent lamented dead of our profession, we regret to record the name of Dr. Wm. C. Rogers, of Green Island, Albany Co., N. Y., who died on the 7th of April last, aged 28 years, of pneumonia.

A special meeting of the Albany County Medical Society, of which he was an honored member, was called on the 9th of April last, and resolutions appropriate to the occasion adopted.

As was said of him by one who knew him—"he was an enthusiastic and energetic worker in his profession; in his social nature, genial and happy; and to his patients, no less a friend than physician."

The pages of our journal have frequently been enriched by his contributions, and his recent death invests with peculiar interest the valuable paper by him which our present number contains, the manuscript of which reached us but a day or two before the announcement of its author's death.

—The January number of the "*Journal de Physiologie*" has been received, and will be noticed in our next number. The removal of its editor, Dr. Brown-Séquard, to London, will not at all interfere with the continuance of this journal. It will be published, as heretofore, at Paris. Dr. Brown-Séquard has been appointed to the charge of a new hospital at London, called the "National Hospital for the Paralyzed and Epileptic." Clinical lectures by this distinguished physiologist will soon be commenced at the hospital.

University of Maryland.—Dr. Edward Warren, of Edenton, North Carolina, has been appointed to fill the Chair of Materia Medica and Therapeutics vacated by the death of Prof. Frick, and Dr. Farnandis has been named as Demonstrator of Anatomy in stead of the late Dr. Berwick B. Smith. Dr. Warren contributed a number of articles to the MONTHLY some years since, and is now the editor of a medical journal published in North Carolina. In assuming the duties of his Chair, he bears with him our best wishes for success.

Unguentum Glycerini.—Under this title, Professor Simon, of Berlin, describes an ointment forming an excellent excipient, composed of five parts of glycerine and one part of amylum. It forms a smooth, butter-like substance, free of all smell, exciting no chemical action, and unaffected by temperature. It is to be preferred to similar substances: 1. For its elegance, its freedom from repulsive odor, and its not exciting erythema in irritable skins. 2. It can be kept in large quantities without undergoing change, even when chemically combined with other bodies. 3. Extracts and soluble salts may not merely be mechanically mixed with it, but may be held in a dissolved condition, the absorption being thus much facilitated. 4. As its consistence remains unchanged, it does not extend beyond the parts to which it is applied. 5. It can be removed with great facility. — *Varges' Zeitschrift.*—*Medical Gazette and Times.*

Formula for Pepsine Wine.—Take of starchy pepsine prepared according to MM. Corvisart and Boudault's formula, one drachm and a half; distilled water, six drachms; white wine (of Lunel) fifteen drachms; white sugar, one ounce; spirit of wine (33°) three drachms; mix until the sugar is quite dissolved and filter. One table-spoonful of this contains fifteen grains of pepsine, and may be given after every meal.

A Medical Joke.—The dead are never sick; consequently, all diseases may be classified as affections of the "Liver."